

AD _____

Award Number: DAMD17-96-1-6310

TITLE: Identification of Abuse and Health Consequences for
Military and Civilian Women

PRINCIPAL INVESTIGATOR: Jacquelyn C. Campbell, Ph.D.

CONTRACTING ORGANIZATION: The Johns Hopkins University
School of Nursing
Baltimore, Maryland 21205

REPORT DATE: April 2001

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are
those of the author(s) and should not be construed as an official
Department of the Army position, policy or decision unless so
designated by other documentation.

20020402 053

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

Management and Budget, Paperwork Reduction Project (0704-0183), Washington, DC 20500			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED	
	April 2001	Final (15 Sep 96 - 14 Mar 01)	
4. TITLE AND SUBTITLE		5. FUNDING NUMBERS	
Identification of Abuse and Health Consequences for Military and Civilian Women		DAMD17-96-1-6310	
6. AUTHOR(S)			
Jacquelyn C. Campbell, Ph.D.			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)		8. PERFORMING ORGANIZATION REPORT NUMBER	
The Johns Hopkins University School of Nursing Baltimore, Maryland 21205			
E-Mail: jcampbel@son.jhmi.edu			
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012			
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT		12b. DISTRIBUTION CODE	
Approved for Public Release; Distribution Unlimited			
13. ABSTRACT (Maximum 200 Words)			
<p>The objective of the study was to compare the prevalence of intimate partner violence and health consequences in civilian and active duty military women in the same geographic area using telephone survey and a case (women experiencing violence) control (men never abused) comparison.</p> <p>Lifetime prevalence of intimate partner violence (IPV) (physical and/or sexual) of the 2005 civilian women was 35.5 with lifetime prevalence of any abuse (including emotional and stalking) of 44.3%. Both lifetime intimate partner violence (29.9%) and lifetime any abuse (38.8) in the military (N= 616) were slightly lower but similar results. In the military sample, 1.6% of the active duty military women reported IPV, and 36.4% reported any abuse by an intimate partner while in the military. Being separated, divorced or widowed were demographic risk factors for IPV, while high levels of education were protective. Both samples, IPV was associated with poorer overall health and significantly more gynecological, stress, and mental health symptoms. Finally, both samples supported routine screening by health professionals for abuse, but were concerned about mandatory reporting</p>			
14. SUBJECT TERMS		15. NUMBER OF PAGES	
		78	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

Table of Contents

Cover.....	Page 1
SF 298.....	Page 2
Table of Contents.....	Page 3
Introduction.....	Page 4
Body.....	Page 4
Key Research Accomplishments.....	Page 8
Reportable Outcomes.....	Page 10
Conclusions.....	Page 11
Recommendations.....	Page 11
Appendices.....	Page 25

INTRODUCTION

The objective of this study is to estimate and compare the prevalence of intimate partner abuse and its health consequences in a population of civilian and military women.

BODY

The prevalence rate of partner abuse in a sample of Kaiser Permanente women enrollees living in the Washington DC area will be compared to a sample of active duty women living in the same geographic area. Health consequences and medical utilization will also be examined and compared between a subset of controls (never abused) and cases (abused at least once since 1989) within the civilian and military samples. The specific aims for the study are as follows:

#1: To determine and compare the life time and annual prevalence of intimate partner abuse against women, including emotional, sexual and physical abuse, in a sample of military women and HMO enrollees and the relationship of this victimization to selected demographic factors.

#2: To determine and compare the medical care utilization patterns and costs of care for adult military and civilian women who are abused (cases) relative to the same in non-abused women (controls) over a three year period.

#3: To determine to what extent a history of intimate partner abuse is a risk factor for other medical conditions and symptoms, including: a) injuries and their medical sequelae; b) STD's/HIV; c) abnormal pap smears, PID, hysterectomies, and other gynecological problems; d) pregnancy-related problems; e) cardiovascular disease, including hypertension; f) irritable bowel syndrome and other stress related disorders; g) neurological disorders; h) problems with alcohol and other drugs; i) depression; and j) post traumatic stress disorder.

#4: To compare military and civilian women's reported medical conditions with those documented in the medical chart and examine the extent to which the correspondence between the two varies between cases and controls and between military and civilian women.

#5: To determine the percentage of military women not disclosing abuse to health care providers because of mandatory reporting regulations in military health care settings, and to compare health outcomes (including trauma) of those abused military women who disclosed abuse and those who did not.

#6: To assess and compare abused and not abused military and civilian women's preferences for, experiences with, and concerns about health care provider policies on domestic violence screening and reporting.

#7: To provide workshops for military and civilian primary care personnel including identification and interventions for intimate partner abuse and dissemination of study results.

Progress: Data collection pertinent to all study objectives has been met for both the active duty military and civilian population. During the last year, survey data was collected from 616 active duty military women. As well as the prior article (1999) published in *Women's Health Issues* on prevalence and risk factors for abuse among the civilian women, an article on domestic violence screening opinions and policy preferences of civilian women who participated in the in-depth interview (202 cases and 240 controls) was published in the *American Journal of Preventative Medicine* (Appendix 2, Publications, Specific Aim 6), and a manuscript on the health care consequences of intimate partner violence (IPV) amongst the civilian women has been submitted for publication to *Archives of Internal Medicine* (Appendix 2, Publications, Specific Aim 3). In addition, the manuscripts "Health Status and Medical Utilization of Services Among African American Domestic Violence Survivors and Control Members of an HMO," "Mental Health Consequences of Intimate Partner Violence," and "Substance Abuse Among HMO Member Survivors of Domestic Violence," (all Specific Aim 3) have been completed and will be

submitted by 7/1/01, and "Prevalence of Domestic Violence in Active Duty Military Women" (Specific Aim 1) is underway. Also planned are (3 total) manuscripts on mandatory reporting in the military (Specific Aims 5 & 6), health care consequences of IPV in the military, and health care costs in both military and civilian populations.

Our response rate among the active duty military women was extremely low, undoubtedly related to the long complex consent process and lack of promise of confidentiality from commanding officers, required by the military Institutional Review Boards. Many active duty military women called or wrote us to make note of these issues, and we would highly recommend that the military consider this lack of confidentiality before funding additional studies on domestic violence. We decided, therefore, to conduct the long form interviews on all active duty military women and implement our case – control analysis on those ever physically and/or sexually abused in comparison to those never abused (comparable to the civilian women). Preliminary analysis of the data has been completed and the more complex weighted analyses underway. For the military cost analysis, we had planned to use the forthcoming DoD computerized medical record system which we had been told at the time of proposal submission by our military co-investigator would be ready when we needed it for analysis (one of the reasons for conducting the civilian part of the study first). We unfortunately found the military system not yet well enough systematized in 2000 to extract the records we need, and costs were not included. We then tried a hand abstraction of the medical records of the active duty military women but found the process incredibly complex and labor intensive, since the majority of women keep their own records, live in a spread out area and were frequently deployed elsewhere when we tried to contact them. We will therefore estimate costs from the interview data.

To date, Dr. Campbell has conducted one workshop for primary care physicians and nurses at the Gaithersburg HMO medical facility. This workshop focused on the nature of domestic violence, how to create a climate that supports patient disclosure in a primary setting and how to respond to disclosures. She is also a regular faculty in the FAST training on family violence and incorporates the findings of this study in her presentations. Since funding, she has conducted 10 FAST trainings in San Antonio, Texas and Germany. She has also been appointed to the Congressionally appointed Department of Defense Task Force on Domestic Violence and has used the findings of this study to inform deliberations of the Task Force. She will make a formal presentation of these findings when all analysis is complete at the August, 2001 meeting. There have been a total of 6 presentations of the HMO data analysis at research (either women's health or violence conferences) with one more accepted for this summer at the University of New Hampshire Family Violence Conference on the substance abuse data. We have not yet submitted any of the active duty military analysis for presentation but will be doing so within the next year.

Timeline: The project is within budget, and final accounting is being submitted. However, data collection was prolonged due to the extension of the recruitment phase of the project for both civilian and military women. Medical records review and cost data were collected after the survey of HMO women was completed in Fall 1999. Active Duty military women were surveyed from January 2000 through January 2001. The survey research firm contracted to conduct the surveys underwent a major change in management and reduction in personnel in February 2000. Due to unsatisfactory performance, their contract was terminated. The remaining active duty military women were interviewed by Johns Hopkins University School of Nursing personnel (a PhD Candidate in the School of Public Health and a premed public health major from the undergraduate program at JHU) hired and trained specifically for that

purpose. Due to the prolongation of the survey data collection period, all analyses was delayed by about one year, but is now close to being completed. Completion of all data analysis is projected for 8/1/01 with submission of all manuscripts by 9/1/01.

Changes to Procedures:

The protocol was carried out successfully with two major modifications made to the recruitment of study participants. Originally, one recruitment interview session was scheduled for women enrolled at Kaiser Permanente's North Capitol and Gaithersburg medical facilities. However, expansion of the study to women enrolled in 3 additional medical facilities (Largo, Kensington, and Springfield Kaiser HMO's) was necessary to overcome a lower than expected response rate amongst the civilian women. The second recruitment and interview phase was performed one year later. Our overall response rate of 12% to our letters of invitation in the civilian was average for mail responses, although lower than our overly optimistic projected rate. We also encountered a lower than expected response rate among the active duty military women as explained above as well as the change in interviewers. We therefore used the long interview for all active duty military women. All other interview procedures remained the same. Change to the cost analysis procedures are outlined above.

Changes to recruitment materials:

No changes were made to the recruitment materials or survey instruments.

Subjects Enrolled:

No subjects are currently enrolled in study. This study design comprised a cross-sectional screening of 2005 women enrollees of Kaiser Permanente for partner abuse. Cases (202) and controls (240) were a subset of the surveyed women. They agreed to participate in a longer more in-depth interview, which followed the initial portion of the survey. Active duty military women were recruited from the Bethesda Medical Center Triservice (DMAD) roster. 616 women returned signed consent forms and were interviewed (see details below). Names and contact information of all study participants have been destroyed and purged from the data files.

Subjects Dropped out Or lost to Follow-up:

The full interview completion rate report for the civilian sample was submitted with the 2000 annual report. Briefly, 17,444 civilian HMO women received the letter of invitation to join the study, with 2535 (14.5%) responding, agreeing to be called for study participation. 447 (17.6%) of the 2535 were not reachable by phone, 64 (2.5%) refused to participate at the point of telephone contact and oral administration of the consent process, and 12 women (<1%) refused to complete the interview after it had begun. An additional 7 (<1%) women were lost because they were no longer HMO members. There was thus an overall survey sample size of 2005 (78% of 2535) civilian women, with 442 (202 cases and 240 controls) interviewed in depth. Overall, 16,540 active duty military women were sent letters introducing the study. 1830 of those women gave initial consent by requesting full consent forms. Reminder post cards were sent to the other 14,710 women, yielding 349 additional consent form requests for a total of 2179 subjects who indicated initial consent for

the study. This is a 13.2% response rate, very similar to the 11.5% overall response rate of the civilian sample. However, only 779 (36%) of the active duty military women receiving the long (4 page) consent form with the required statement saying that the study results might become part of her medical record and could be reviewed by woman's commanding officer, actually returned signed consent forms. 616 (79%) were reached and completed full interviews, a similar completion rate as for the civilian sample (78% of those consenting). All of the consenting active duty military women who were not actually interviewed were not reachable by phone; either because they had been deployed overseas, transferred to an unknown location, or had left the military. Therefore, the overall response rate of the military sample was only 3.72%. However, the major difference between the civilian and military samples was the two stage consent process with the long consent form and lack of assurance of full confidentiality for the active duty military women. This was the step that caused the lower response rate among the active duty military women which also resulted in a lower overall sample size for prevalence estimates and risk factor analysis (See Appendix 1 for full military recruitment report).

Subjects to be enrolled:

Study has been completed.

Problems or barriers:

There was a lower than expected response to the recruitment letters in the civilian and the active duty military populations. In the civilian population, the problem was resolved by expansion of the study to other Kaiser Permanente medical facilities. There were no problems with the data collection of medical records and health care costs for our civilian cases and controls. Our other major problem was the lower than expected consent rate amongst the active duty military women as detailed above. This necessitated full interviews of all military women and a lower than expected sample size amongst the military women. However, 616 women were successfully interviewed and there were sufficient women who were the victims of IPV while in the military (N = 135) to conduct a case control analysis with sufficient power.

Adverse effects:

No unforeseen problems compromising the safety of participants had occurred. All interviewers were trained in safety and sensitivity protocol with respect to domestic violence issues.

KEY RESEARCH ACCOMPLISHMENTS

Findings: Life time prevalence of intimate partner violence (IPV) (physical and/or sexual assault) of the civilian women was reported at 35.5% with an additional 117 women reporting emotional abuse and/or stalking for a lifetime prevalence of any abuse of 44.3% (See Table 1 and Figure 1). Both lifetime IPV (29.9%) and lifetime any abuse (38.8%) in the military population was slightly lower but very similar. Importantly, 21.6% of the active duty military women reported physical and/or sexual assault and 36.4% reported any abuse from an intimate partner while they were in the military. A much smaller proportion (4.5%) of the HMO sample reported physical and/or sexual assault in past two years. Amongst active duty military women, the prevalence of past year prevalence was only .5%, a low disclosure we feel undoubtedly related to the lack of confidentiality. The other major findings are summarized below:

- The demographic profile of the civilian women was somewhat different from the military women in spite of their being from the same geographic area, with the military women being slightly younger, more likely to be white (rather than African American – 47% of civilian women vs. 16% of military women), with more education and fewer children but *lower* family income levels. (See Table 2) (Note: the demographic profile of the civilian population was similar to the military in terms of ethnicity and employment; therefore, a smaller proportion of African American active duty military than civilian women consented to take part in the study).
- When controlling for other socio-demographic variables in the civilian sample: women between 21 to 29 years old and 40 to 49 years old were 70% more likely to have been abused by an intimate partner than women in other age groups ($P < .01$). Age group was not a risk factor for the military women.

Civilian college educated women were 50% less likely to be abused ($P < .001$) College education was also significantly protective from abuse for the active duty military women.

Civilian divorced or separated women were $2\frac{1}{2}$ times more likely to experience abuse and widows are 4 times more likely ($P < .001$). For the military women, being separated, divorced or widowed was also significantly associated with intimate partner violence.

For both groups of women, income was also associated with abuse, with a family income less than \$30,000 a year, however, this association disappeared in multivariate analysis in the civilian sample. Being enlisted (rather than an officer) associated with intimate partner violence (IPV) in the active duty military women. Also having 3 or more children was associated with IPV for the military women, and having no children was protective, while there was no association for the civilian women.

- For both groups of women being African American was associated with an increased risk of lifetime physical and/or sexual assault. However, this association decreased in the multivariate analysis and acted in the opposite

direction for abuse during military service (Table 3). African American women (or at least those who consented to be part of the study) were significantly *less* likely to be abused during military service than were white women.

- In both civilian and military populations, the various forms of abuse (physical, sexual and emotional) tend to overlap. A ven diagram demonstrating this overlap amongst the military women is presented in Figure 2. As can be seen, amongst active duty military (as well as civilian) women, the majority of physically abused women are also emotionally abused, and amongst the physically abused women, approximately half are also sexually abused.

Highlights of results from the analysis of health policy preferences of civilian and military cases and controls are as follows:

- In the civilian population, more than one-half (54%) of abused (cases) and nearly one-half of non-abused women (controls) felt that managed care providers should routinely screen all women for intimate partner violence at every visit. After controlling for sociodemographics, the following differences between cases and controls were found:
 - 1) Abused women were 1.5 times more likely to support routine screening than non-abused women.
 - 2) Nearly 100% of both abused and not abused civilian women would be glad someone took an interest.
 - 3) Eighty-five percent of civilian women (abused and not) said it would make it easier for abused women to get help if women were routinely screened.
 - 4) In spite of their overall support for the practice, nearly one half of both cases and controls in the civilian population (48%) would be embarrassed if managed care providers routinely screened for abuse.
 - 5) Only a few (11% of both groups) women thought that women might lose their health insurance if they were routinely screened for abuse.
 - 6) 40% of abused women thought reporting abuse to the police would put them at more risk for abuse by their partner.
 - 7) Significantly more abused than not abused women thought it should be up to the woman whether or not the police were notified about abuse.
- An even greater majority of active duty military women also supported routine screening for IPV by military health care personnel with 61.7% of those ever abused expressing the strongest support, 62% of those physically and/or sexually abused also supporting routine screening and 53% of those never abused supporting the practice. Other important findings regarding screening and reporting amongst military women are as follows:
 - Only about a third of both groups (abused and not) were concerned about women not abused being insulted, but about 60% of both groups were concerned about embarrassment with routine screening. 65% of abused women were concerned that abused women would be put at risk from routine screening, but almost half of abused women said they would be glad someone took an interest.
 - The majority of both abused and not abused women thought that mandatory reporting to the military police would make it easier for women

to get help and that they would like having someone else be responsible for calling the police. At the same time, close to 50% of both groups thought women resented losing control of when to call the police. Active duty military women were particularly concerned about command notification with only 35% of those ever abused (vs. 65% never abused) saying that medical personnel should notify the woman's commanding officer if she was abused. Significantly more of the abused women than not abused thought that the military mandatory reporting policy should change and were concerned about abused women's safety, careers and reluctance to disclose abuse with mandatory reporting. The most popular option regarding mandatory reporting amongst abused women (48%) was that the abused woman should decide whether or not the report should be made to Family Advocacy by medical personnel. (See Tables 5 & 6)

The analyses of health effects are summarized below:

- Amongst the civilian population, lifetime IPV victims reported overall poorer health and had significantly more headaches, back pain, STD's, vaginal bleeding, vaginal infections, pelvic pain, painful intercourse, urinary tract infections, appetite loss, abdominal pain, digestive problems, PTSD and depressive symptoms.
- Amongst the military population, a greater proportion of IPV victims also reported significantly poorer health overall health. Women who were never abused by an intimate partner reported fewer gynecological, stress and mental health symptoms. Specifically, they reported significantly less back pain, vaginal bleeding, pelvic pain, painful intercourse, STD's, abdominal pain, digestive problems, loss of appetite, and depressive symptoms. 31% of the never abused women had 1 or more depressive symptoms while 47.8% of those who were ever physically or sexually assaulted by an intimate partner had one or more symptoms of depression. (See Tables 7,8 & 9 and Figure 3).

REPORTABLE OUTCOMES

Dienemann, J., Jones, A.S., Schollenberger, J., Campbell, Jacquelyn, C. Kub, J., O'Campo, P. (2001) Physical Consequences of Intimate Partner Violence in a Sample of HMO Enrollees. In Press

Gielen, A..C., O'Campo, P., Campbell, J.C., Schollenberger, J., Woods, A.B., Jones, A.S., Dienemann , J.A., Kub, J., Clifford, W. (2000). Women's Opinion About Mandatory Domestic Violence Screening and mandatory Reporting. American Journal of Preventive Medicine, 19 (4), 279 – 285.

Jones, A.S., Gielen, A. C., Campbell, J.C., O'Campo, , P., Wynne, C. (1999). Annual and Lifetime Prevalence of Partner Abuse in a Sample of HMO Enrollees. Women's Health Issues, 9(6), 295-305.

To date, Dr. Campbell has conducted one workshop for primary care physicians and nurses at the Gaithersburg HMO medical facility. This workshop focused on the nature of domestic violence, how to create a climate that supports patient disclosure in a primary setting and how to

respond to disclosures. She is also a regular faculty in the FAST training on family violence and incorporates the findings of this study in her presentations. Since funding, she has conducted 10 FAST trainings in San Antonio, Texas and Germany. She has also been appointed to the Congressionally appointed Department of Defense Task Force on Domestic Violence and has used the findings of this study to inform deliberations of the Task Force. She will make a formal presentation of these findings when all analysis is complete at the August, 2001 meeting. There have been a total of 6 presentations of the HMO data analysis at research (either women's health or violence conferences) with one more accepted for this summer at the University of New Hampshire Family Violence Conference on the substance abuse data. We have not yet submitted any of the active duty military analysis for presentation but will be doing so within the next year.

CONCLUSIONS

- A significant proportion (21.6% or 1 out of 5) of a sample of 616 active duty military (ADM) women report that they were the victim of intimate partner violence (IPV - physical and/or sexual assault by an intimate partner) while in the military. More than a third (35.5%) reported that they were the victim of some kind of abuse (including psychological abuse and stalking) from an intimate partner while in the military. A roughly comparable sample of 2005 also well educated, middle class, employed civilian women from an HMO and the same geographic area and of similar background in terms of employment and education (although slightly older, slightly less well educated and considerably more likely to be of African American ethnicity - 47% vs. 16%) had a similar although slightly lower prevalence of lifetime IPV (35.5% civilian vs. 29.9% - ADM) and any abuse (44.3% vs. 38.8%). Multivariate analysis demonstrated that for the military sample, being of African American ethnicity and being an officer was associated with less IPV while in the HMO sample, the ethnic association was in the opposite direction. In addition, being divorced or separated and lower educational levels were associated with increased IPV in both samples. 30% of the violent perpetrators had been in the military (39.4% of the any abuse category) with approximately equal proportions from each branch of service (26% Air Force; 35.8% Army; 36.4% Marines; 28.3% Navy). Although very few (4.5% vs. .5%) of both groups reported current IPV, the deleterious mental and physical health effects continued. Women never abused by an intimate partner in both groups reported better overall health and fewer gynecological, stress and mental health symptoms and visits to health care providers than those with an abuse history (both IPV and psychological abuse and stalking). Both groups of women also reported an association of IPV and back pain, depression and PTSD. In addition, active duty military women with a history of intimate partner abuse reported more injuries.

RECOMMENDATIONS

- Increase DOD cognizance of the widespread prevalence of IPV among active duty military women.
- Training for military personnel (including health care personnel) in regards to IPV include these results so that the health sequelae of IPV can be more accurately and effectively diagnosed and treated.

- Conduct a wider prevalence of abuse (both IPV and other forms) study in both active duty military and military dependent populations with a less complex consent process and complete confidentiality assured.
- Re-evaluate and revise mandated reporting provisions of all intimate partner abuse in the military by health care personnel in light of these findings to:
 - increase the appropriate treatment of health care sequelae of abuse (and thereby improve troop fitness and decrease DOD health care costs)
 - improve early identification, prevention and appropriate intervention with IPV in the health care system
 - enhance victim safety

TABLE 1. LIFETIME AND MILITARY PERIOD PREVALENCE OF PHYSICAL AND /OR SEXUAL ABUSE, EMOTIONAL ABUSE, ANY ABUSE

Abuse	Civilian HMO Sample			Military Sample		
	Lifetime		Lifetime		Military Period	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Total Sample	2005		616		616	
Lifetime Emotional Abuse	667	33.8	204	33.1	—	—
Lifetime any abuse	889	44.3	239	38.8	224	36.4*
Lifetime abuse of physical and /or sexual abuse	712	35.5	184	29.9	133	21.6
Physical and /or sexual in past 2 years	90	4.5	4	0.6	—	—

Military period prevalence of any abuse (emotional, sexual, physical and/or stalking)
Includes only women who were emotionally abused in 1998.

Table 2. LIFETIME AND MILITARY SERVICE PERIOD PREVALENCE RATES OF PHYSICAL AND/OR SEXUAL ASSAULT BY INTIMATE PARTNERS IN A SAMPLE OF ACTIVE DUTY MILITARY WOMEN

Characteristics	Civilian HMO Sample		Military Sample		
	<u>N</u> 2005	<u>%</u> 712 (35.5)	<u>N</u> 616	<u>%</u> 184 (29.9)	<u>%</u> 133 (21.6)
Total Sample					
Age group†					
21-29	36	5.1	95	23.2	17.9
30-39	159	22.3	244	29.5	24.2
40-49	347	48.7	252	32.9	20.6
50-59	170	23.9	25	28.0	20.0
Race*†					
White European	298	42.0	466	26.0	27.8
African American	365	51.5	97	44.3	20.0
Others	46	6.5	50	36.0	22.0
Current Marital Status*†					
Married	338	47.5	410	25.9	18.5
Divorced/Separated	189	26.5	77	59.7	45.5
Widowed	61	8.6	10	70.0	70.0
Single	124	7.4	119	21.0	12.6
Education*†					
HS school	210	29.5	36	33.3	25.0
Some College	252	35.4	161	40.4	34.2
4 Years College	144	20.2	150	28.7	19.3
Post-Graduate	106	14.9	267	24.0	15.0
Household income†					
< 30,000	125	18.0	85	37.6	28.2
30,000-50,000	209	30.0	134	32.1	23.1
51,000 – 80,000	191	27.4	180	31.7	22.8
> 80,000	171	24.6	192	23.4	16.7
Percent of total income†					
< 25%	68	9.7	3	33.3	
25 – 49%	131	18.7	249	26.1	18.9
50 – 75%	186	26.5	121	27.3	19.8
> 75%	317	45.2	238	35.3	26.1
Children in household*†					
None	953	48.4	298	23.2	15.1
1	436	45.6	140	40.0	32.1
2	406	36.7	123	26.8	18.7
≥ 3	208	38.5	53	49.1	37.7
Military Status*					
Enlisted	NA	NA	271	39.5	30.6
Officer	NA	NA	345	22.3	14.5

*includes, GED, trade school graduates, and women who did not complete high school

† P < 0.05 in military sample

† P < 0.05 in civilian HMO sample

**Table 3. LIFETIME AND MILITARY SERVICE PERIOD PREVALENCE RATES OF ABUSE
(PHYSICAL, SEXUAL, EMOTIONAL, AND/OR STALKING) BY INTIMATE PARTNERS IN A SAMPLE
OF ACTIVE DUTY MILITARY WOMEN**

Characteristics	Total Sample		Lifetime prevalence	Prevalence while in military
	N	%	%	%
Total Sample	616	100	38.8	36.4
Age group				
21-29	95	15.4	33.7	32.6
30-39	244	39.6	38.5	35.7
40-49	252	40.9	41.3	38.5
50-59	25	4.1	36.0	36.0
Race†*				
White European	466	75.7	36.3	31.5
African American	97	15.8	49.5	40.2
Others	50	8.1	40.0	32.0
Current Marital Status†*				
Married	410	66.6	35.1	32.7
Divorced/Separated	77	12.5	71.4	67.5
Widowed	10	1.6	70.0	70.0
Single	119	19.3	27.7	26.1
Education				
HS grade	36	5.8	41.7	44.3
Some College	161	26.1	47.8	34.8
4 Years College	150	24.4	36.0	34.0
Post-Graduate	267	43.3	34.8	36.2
Household income				
< 30,000	85	13.8	44.7	41.2
30,000-50,000	134	21.8	42.5	39.6
51,000 – 80,000	180	29.2	38.3	36.1
> 80,000	192	31.2	34.4	32.3
Percent of total income				
< 25 %	3	0.5	33.3	33.3
25 – 50%	249	40.4	34.9	32.5
51 – 75%	121	19.6	37.2	36.4
> 75%	243	39.5	44.1	41.2
No. of children in household†*				
None	298	48.4	32.2	30.2
1	140	22.7	49.3	47.1
2	123	20.0	35.8	33.3
≥ 3	53	8.6	54.7	49.1
Military Status††				
Enlisted	271	44.0	46.9	44.3
Officer	345	56.0	32.5	30.1

† P < 0.05 in lifetime prevalence

* P < 0.05 in military period prevalence

Table 4. PARTNER CHARACTERISTICS OF ACTIVE DUTY MILITARY WOMEN EXPERIENCING INTIMATE PARTNER ASSAULT

Partner Characteristics	Lifetime Physical and/ or sexual abuse			Any abuse (physical and/or sexual, emotional and stalking) %
	N	%	%	
Total Sample	519		29.9	38.8
Age group				
21-29	50	9.6	18.0	28.0
30-39	172	33.1	30.8	41.9
40-49	203	39.1	37.9	44.8
≥ 50	61	11.8	19.7	31.1
Race† *				
White European	387	74.6	26.6	36.7
African American	92	17.7	53.3	57.6
Others	40	7.7	35.0	47.5
Current employment†‡				
Fulltime	398	76.7	28.9	38.7
Parttime	13	2.5	23.1	38.5
Unemployed	14	2.7	50.0	50.0
	37	7.1	35.1	24.3
Retired/student/homemaker				
In military	55	10.6	60.0	54.5
Education†*				
HS*	127	24.5	52.0	57.5
Some College	104	20.0	36.5	44.2
4 Years College	134	25.8	19.4	32.8
Post-Graduate	146	28.1	22.6	32.9
Currently in the armed Forces?				
Yes	433	90	30.9	40.2
No	48	10	27.1	41.7
Military type†*				
Enlisted	248	47.8	39.1	46.8
officer	183	35.3	19.1	30.6

† categories are not mutually exclusive

‡ P < 0.05 for lifetime physical and/or sexual abuse

* P < 0.05 for lifetime abuse (physical, sexual, emotional and/or stalking)

TABLE 5. WOMEN'S BELIEFS CONCERNING ROUTING SCREENING AND AMONG ACTIVE DUTY MILITARY WOMEN

Beliefs about consequences and policy preferences	Never abused		Any abuse		Physical/sexual abuse	
	N	%	N	%	N	%
Total Sample	377		239		184	
<u>Routine Screening</u>						
Ask Women at all times about abuse	159	53.5	132	61.7	103	62.0
Women would be offended or embarrassed* [†]	169	44.8	132	55.2	102	55.4
Women who are not being abused would be insulted* [†]	103	27.3	81	33.9	64	34.8
Routine screening would make it easier for women to get help [†]	230	61.0	152	63.6	116	63.0
It would put women at more risk for being hurt by their abusers*	214	56.8	140	58.6	109	59.2
Women would be glad someone took interest* [†]	119	31.6	107	44.8	81	44.0
Abused women are more likely not to inform Dr or Nurse [†]	243	64.5	162	67.8	123	66.8
Abused women fear negative effects on military career* [†]	172	45.6	130	54.4	101	54.9
Abused women fear negative effects on partner's career* [†]	82	21.8	29	12.1	123	66.8
<u>Mandatory reporting</u>						
Women would find it easier to get help* [†]	255	67.6	172	72.0	133	72.3
Women would be at greater risk for being abused*	184	48.8	130	54.4	98	53.3
Women would like having someone else be responsible for calling the police* [†]	218	57.8	154	64.4	119	64.7
Women would be less likely to tell their health care providers if they are abused	182	48.3	125	52.3	93	50.5
Women would resent losing control over when to call the police* [†]	147	39.0	102	42.7	80	43.5
Women's career would be damaged* [†]	141	37.4	98	41.0	77	41.8
Partner's career would be damaged [†]	272	72.1	191	79.9	150	81.5

* P < 0.05 in women who were exposed to any abuse

† P < 0.05 in women who were exposed to any abuse

**TABLE 6. ACTIVE DUTY MILITARY WOMEN'S POLICY PREFERENCES CONCERNING
MANDATORY REPORTING AMONG ACTIVE DUTY MILITARY WOMEN**

	Never abused		Any abuse		Physical/sexual abuse	
	N	%	N	%	N	%
Total Sample	377		239		184	
Should the Family Advocacy Program routinely refer abuse reports to military or civilian police?	168	54.7	104	48.4	79	47.3
Should the Family Advocacy Program routinely refer abuse reports to victim's commanding officer?*	159	51.8	86	40.0	69	41.3
Do you think it would be helpful if the abuse was not reported by health care provider to Family Advocacy Program or Commanding Officer? ϕ	90	29.3	82	38.1	67	40.1
Do you think that the military's policy of mandatory reporting should remain the same? * ϕ	255	83.1	162	75.3	122	73.1

TABLE 7. PERCEPTION OF GENERAL HEALTH AND HEATLH PROBLEMS REPORTED BY ABUSED AND NEVER ABUSED WOMEN between 1992-2000.

Health Problems	Never abused		Lifetime any abuse		Any abuse between 92-2000*	
	N	%	N	%	N	%
	377	61.2	239	38.8	80	17.5
Perception of General Health†#						
Good/very good/ Excellent	307	81.4	165	69.0	54	67.5
Fair/Poor	70	18.6	74	31.0	26	32.5
CNS†#						
Headache	87	54.0	52	60.5	21	52.4
Fainting	306	1.0	8	3.7	70	4.3
Back Pain	306	25.2	84	39.1	70	42.9
Seizures			1	0.5		
Concussion or head	306	1.3	5	2.3	70	—
Injury/problem					70	—
Seizures	306	—			70	—
GYN†#						
Vaginal Bleeding	306	5.2	24	11.2	70	12.9
Vaginal itch or discharge	306	12.7	31	14.4	70	21.4
Pelvic Pain	306	5.2	33	15.3	70	14.3
Painful intercourse	307	5.5	21	9.8	70	14.3
Fibroids	306	6.9	28	13.0	70	10.0
Urinary Infection	306	12.4	36	16.7	70	18.6
STDs or PID	306	1.0	15	7.0	70	8.6
CHS†#						
High blood pressure	306	7.8	22	10.2	70	8.6
Frequent Loss of appetite	306	5.9	8	3.7	70	8.6
Abdominal pain	306	0.7	32	14.9	70	14.3
Digestive problem	306	5.9	51	23.7	70	37.9
Bad cold or flu	306	30.1	80	37.2	70	34.3
HIV or AIDS/problem	306	—	1	0.5	70	—
Injuries						
Injuries Needing Surgery			10	4.7		
Broken bones	306	2.3	8	3.7	70	5.7
Injuries or Cuts Needing	306	1.6	7	3.3	70	5.7
Stitches						
Torn Ligaments or Sprains	307	6.8	24	11.2	70	11.4
Bad Burns or Scalds	307	1.3	2	0.9	70	—
Facial Injuries	306	0.7	2	0.9	70	1.4

The variable “abused between 1992-2000” doesn’t include all women who were emotionally abused between 92-000.

The available data only include those who were ever emotionally abused in 1998.

TABLE 8. HEALTH PROBLEMS REPORTED BY ACTIVE DUTY MILITARY WOMEN WHO WERE NEVER ABUSED, AND THOSE WHO HAD ANY ABUSED (PHYSICAL, SEXUAL, EMOTIONAL, AND/OR STALKING) BETWEEN 1992-2000.

Health Problems	Never abused		Any abuse		Abused between 92-2000*	
	N	%	N	%	N	%
Total Sample	377	61.2	239	38.8	80	13.0
Gynecological						
No health problems	273	72.4	140	58.6	42	52.5
One or more health problems	104	27.6	99	41.4	38	47.5
Chronic stress†						
No health problems	243	64.5	119	49.8	43	53.8
One or more health problems	134	35.5	120	50.2	37	46.3
Central Nervous System†						
No health problems	272	67.3	132	55.2	46	57.5
One or more health problems	105	49.5	107	44.8	34	42.5
Total†						
No health problems	215	57.0	174	72.8	58	72.5
One or more health problems	162	43.0	65	27.2	22	27.5

*Military women abused between 1992-2000 does not include all who were emotionally abused.

The available data only include those who were ever emotionally abused, and those who were emotionally abused in 1998

† P < 0.05 for lifetime any abuse and never abused

TABLE 9. PROPORTION OF ABUSED ACTIVE DUTY MILITARY WOMEN REPORTING ONE OR TWO SYMPTOMS OF DEPRESSION

Depression	Never abused		Any Abuse		Physical and/or sexual	
	N	%	N	%	N	%
Total Sample	377	61.2	239	38.8	184	29.9
None	260	69.0	122	51.0*	96	52.2*
One or more	117	31.0	117	49.0	88	47.8

* P < 0.5 for "any abuse"

FIGURE 1. LIFETIME AND MILITARY PERIOD PREVALENCE OF ABUSE

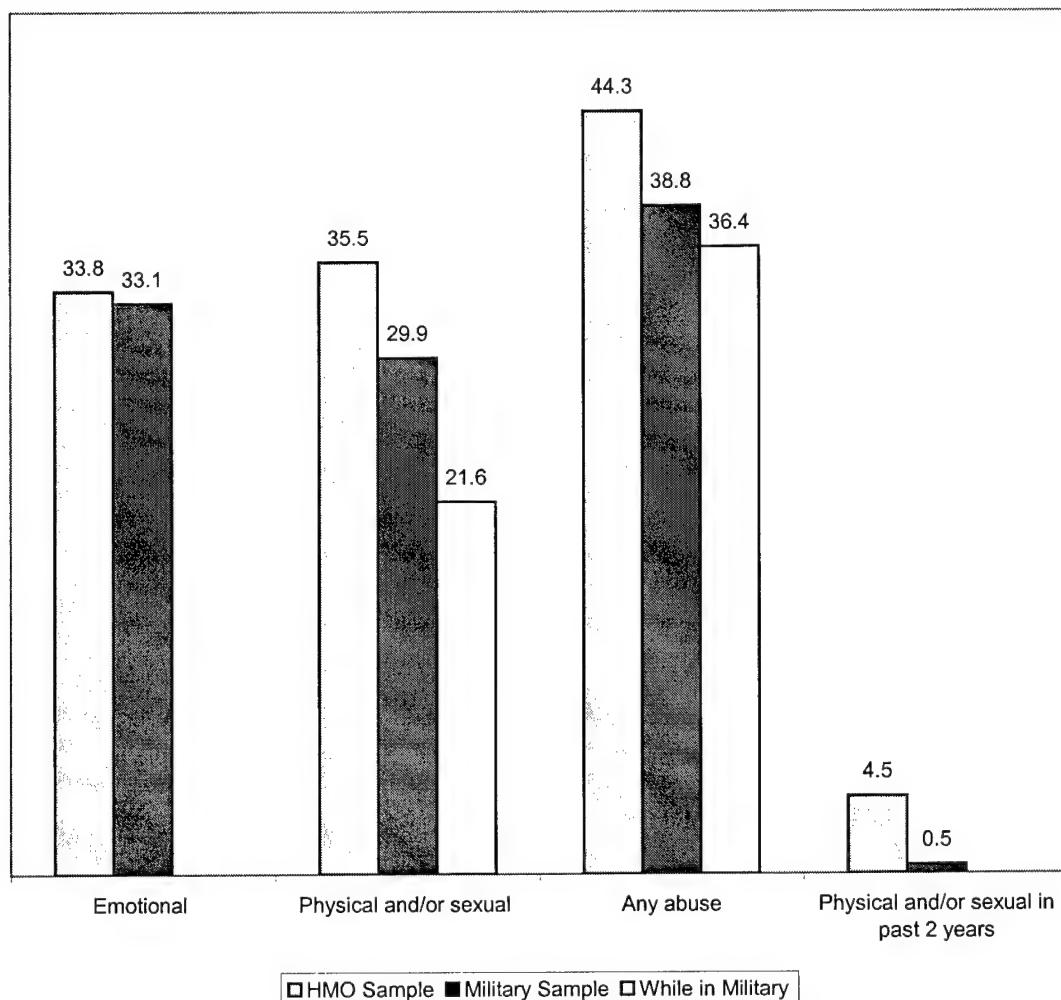


Figure 2. Overlap between physical, sexual and emotional

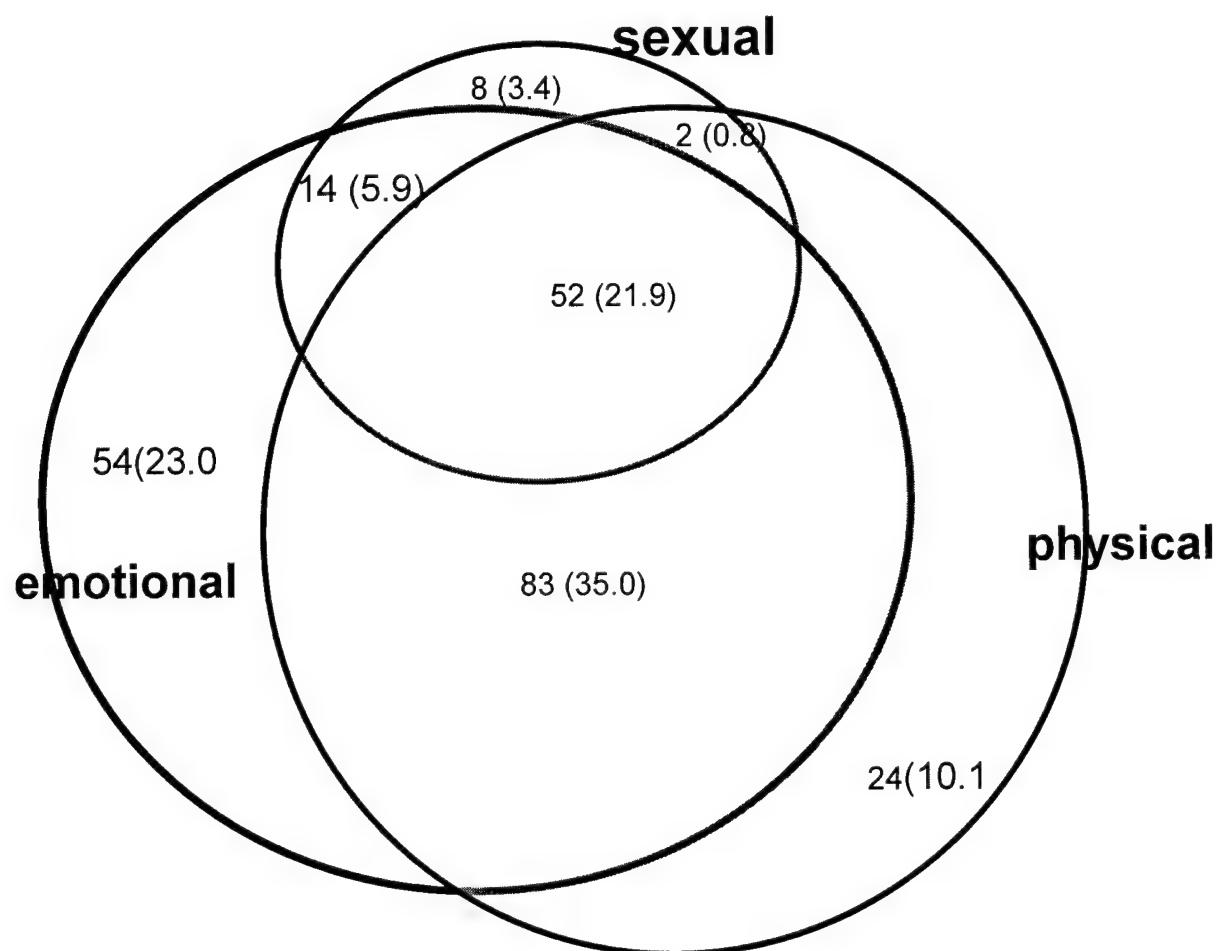
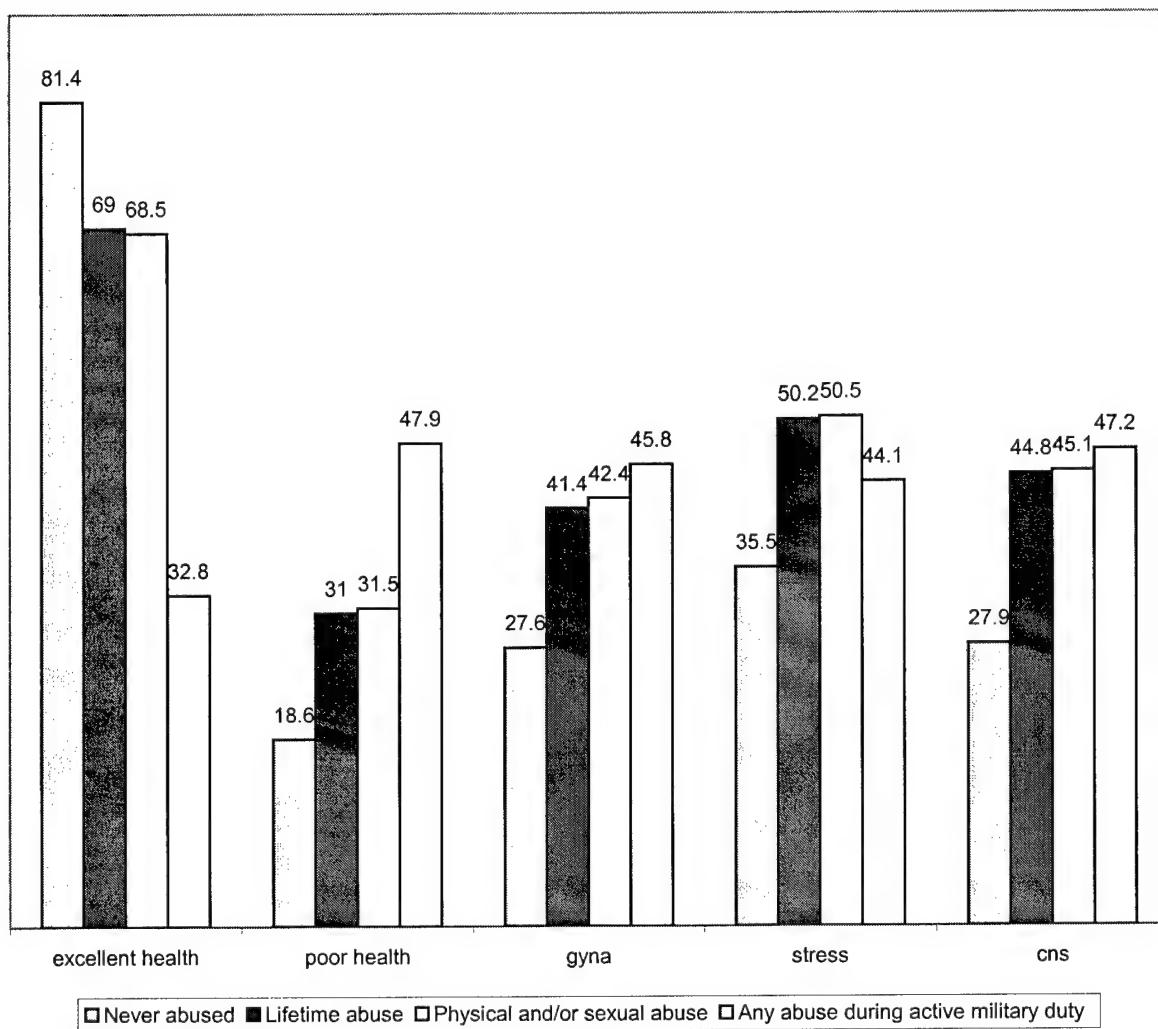


FIGURE 3. PROPORTION OF HEALTH PROBLEMS REPORTED BY ABUSED AND NON-ABUSED WOMEN



Appendix 1

Detailed Active Duty Military Women Recruitment Report

Final Progress Report

Identification of Abuse and Health Consequences for Military and Civilian Women

Military Recruitment Process

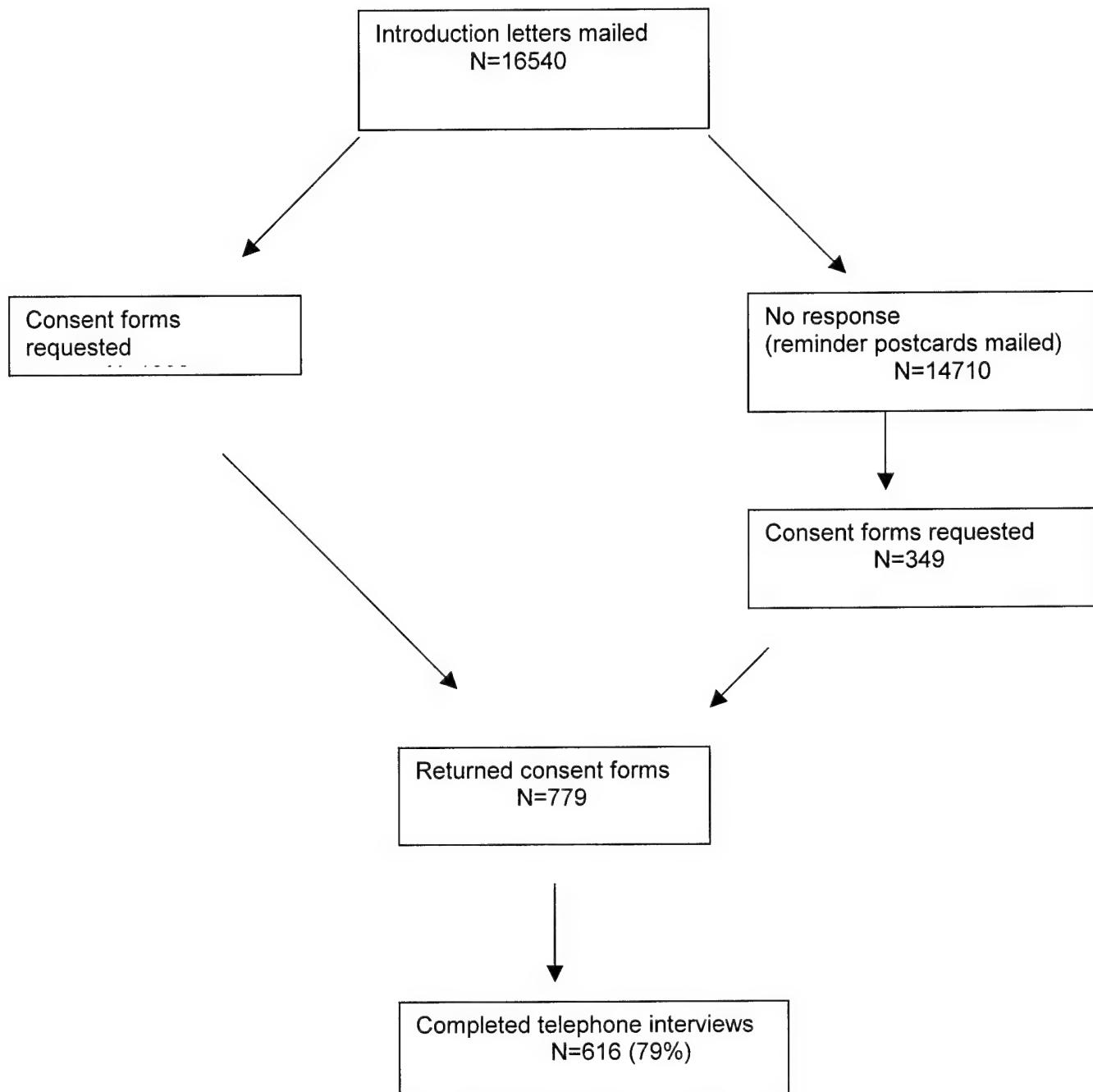
June 11,2000

Recruitment of study participants targeted active duty women enrolled in the military for a minimum of three years, covering at least 1995through 1997: between 21 and 55 years old; and residing within 100 miles radius of Washington, DC and Portsmouth, VA. The Defense Manpower Data Center (DMDC) selected 16540 active duty women across all services according to these criteria in April 1999. The center provided a data base file with the names and addresses (duty and home) and rank.

Letters of introduction to the study were mailed to all 16540 women at their duty addresses in May 1999. In response to these letters, 1830 (11.1%) women gave preliminary consent by returning the request for consent form by returning an address sheet to Johns Hopkins University. To assure that all prospective participants received an introduction letter, Johns Hopkins also mailed postcards in two separate waves to the remaining 14710 women. An additional 349* women requested a consent form in response to these postcards. This brought the total number of mailed consent forms to 2179* or 13.3%. Of these consent forms mailed out, 768*(35.2%) were signed and returned to Johns Hopkins, thereby authorizing participation in the study. 616 of the 768 (80.2%) women granting consent were successfully interviewed for an overall response rate of 3.72% (See Flow Chart). The remainder had transferred without an updated address and phone number located, deployed overseas or left the military and could not be located.

The most notable obstacle to participation was the precipitous decline in the willingness of women to participate after having received the written consent form. Had verbal consent been approved (as it asks for civilian women), we would have reached our goal of 2000 screenings for an overall response rate of roughly 13.2%. (Close to the response rated of the civilian sample and similar to most mail in surveys.) Based on the phone conversation with women calling in with questions, this low return rate of consent forms can be attributed to the burdensome and time consuming process and to the "intimidating", "discouraging", "daunting" (quotes from military women) nature of the consent form that was required by the DOD. The consent referred to the possible inclusion of study results in the participants' medical records, and possible review by command.

Identification of Abuse and Health Consequences for Military and Civilian Women
Study Participant Recruitment Process
June 1, 2001



Appendix 2

Publications and Manuscripts

Physical Health Consequences of Intimate Personal Violence in a Sample of Female HMO Enrollees (2001)

Jacqueline Dienemann PhD RN, School of Nursing and Health Studies, Georgetown University.

Alison Snow Jones PhD, Department of Public Health Science, Wake Forest University School of Medicine.

Janet Schollenberger MHS, Department of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health.

Jacquelyn Campbell PhD RN, School of Nursing, Johns Hopkins University,

Joan Kub PhD, RN, School of Nursing, Johns Hopkins University,

Patricia O'Campo PhD, Department of Family and Population Sciences, Johns Hopkins University School of Hygiene and Public Health.

Andrea Carlson Gielen PhD, Department of Health, Policy and Management, Johns Hopkins University School of Hygiene and Public Health.

Clifford Wynne, MD, Department of Obstetrics and Gynecology, Kaiser Permanente, Washington, DC.

Acknowledgment:

This research was supported by U.S. Army Research Materiel and Command (USAMRMC),
DAMD 17-96-1-631/RCS DD-HA(OT)2068. Any errors are the authors' own.

Objective: To compare selected health problems of abused and never abused women with similar access to health care.

Design & Setting: Case control study of enrollees in a multi-site, metropolitan HMO.

Sample: Of 2535 women aged 21-55 enrolled in an HMO who responded to an invitation to participate, 17.6% could not be contacted and 3.0% refused, yielding a sample of 2005. The Abuse Assessment Screen was used to identify women physically and/or sexually abused between 1989 and 1997 resulting in 201 cases. Controls were a random sample of 240 women never abused.

Main Outcome Measures: The MOS-SF36 health subscale measured general health. The Miller Abuse Physical Symptoms and Injury Scale measured abuse specific health problems.

Results: Cases and controls differed in ethnicity, marital status, education, and income. Direct weights were used to standardize for comparisons. Significance was tested using logistic and negative binomial regressions. Abused women had more ($p \leq .05$) headaches, back pain, STD, vaginal bleeding, vaginal infections, pelvic pain, painful intercourse, urinary infections, appetite loss, abdominal pain and digestive problems. Abused women had more ($p \leq .001$) gynecological, chronic stress, central nervous system and total health problems, with sexually abused women at greatest risk for some symptom clusters.

Conclusions: Abused women have a 50-70% increase in GYN, CNS, and stress-related problems with women both sexually and physically abused most likely to report problems. Routine universal screening and sensitive in depth assessment of women presenting with frequent GYN, chronic stress or CNS complaints is needed to support disclosure of intimate partner violence.

There is mounting evidence that intimate partner abuse has long term negative health consequences for survivors, even after the abuse has ended. This can translate into lower health status, lower quality of life, and higher utilization of health services^{1,2,3,4}. This article describes the physical health symptoms, problems, and perceptions of health status of 201 women with a history of intimate partner violence (IPV). They are compared to a control group of 240 women with no such history. The sample is drawn from a survey of 2005 female HMO enrollees in the metropolitan Washington DC area. The sample represents a racially balanced and primarily highly educated group of middle class, working women. This suggests that both intimate partner abuse and associated negative health consequences may not be restricted to patients in medical practices that serve only low income women.

Previous Research

Battering is a significant risk factor for a variety of physical health problems frequently encountered in primary care settings. The most common locations for injuries among battered women are the face, neck, upper torso, breast or abdomen⁵. These are the acute consequences of battering that most health care providers associate with IPV. Yet, studies of battered women have found that the long term aftermath of these injuries and the fear and stress associated with having an abusive intimate partner can result in several less obvious, and often chronic, health problems. These can include pain or discomfort from recurring central nervous system symptoms such as headaches, back pain, fainting or seizures^{6,7,8,9,10,11}. Battered women also exhibit more somatic symptoms associated with chronic fear and stress such as functional gastrointestinal disorders and loss of appetite^{12,13}, viral infections such as colds and flu^{14,15}, and cardiac symptoms such as hypertension and chest pain^{14,15}. Researchers have found battered women more likely to have gynecological symptoms such as sexually transmitted diseases, vaginal bleeding or infection, fibroids, pelvic pain and urinary tract infections, all of which are also associated with sexual abuse^{16,17}. Forty to forty-five

percent of women who are physically abused by their intimate partners are forced into sexual activities by him. Another, smaller percentage are sexually abused by their intimate partner, but not physically abused^{4,18,19}. This may explain the high prevalence of gynecological problems reported by battered women, although none of these studies measured forced sex separately^{15,20,21,22,23}

Findings related from four roughly comparable samples of women are presented in TABLE 1. As can be seen, there is not always agreement among researchers about the types of health problems that primary physicians should regard as possible signs of abuse^{13,17,24,25}. This may be due to the variety of somatic responses people can have to trauma as well as the different types of injuries abused women can experience. Both factors can lead to a variety of long term health problems. Despite the variability in patterns of health problems, there *is* agreement that battering has been found to have long term emotional and physical health effects^{26,27}.

SAMPLE

After Institutional Review Board approval was received from the participating Washington, DC, area HMO at the national and regional level, letters of invitation were sent to 21,426 women between the ages of 21 and 55 who were continuously enrolled from 1995 through 1997. For safety reasons, the letters, which were mailed in Fall, 1997 and Fall, 1998, did not mention abuse. Instead, they asked women to participate in a women's health survey. Twelve percent or 2,535 women responded indicating a time and telephone number where they could be reached for a private interview. A professional survey company, whose interviewers were trained by the investigators, was employed to conduct all interviews. Upon making telephone contact with an eligible subject, the interviewer described the nature of the study and obtained verbal consent. Of the 2535 women, 447 (17.6%) could not be located and 76 (3.0%) refused to participate, resulting in a sample of 2005 (79.1% of eligible) female HMO enrollees who completed abuse screening interviews. Demographic information about eligible women

who did not participate in the study was not available from the HMO. Consequently, no comparisons between the sample and the larger population can be made.

Cases and Controls

A modified version of the Abuse Assessment Screen (AAS)²⁸ was administered to all 2005 women. Intimate partner violence was defined as physical and/or sexual assault by a husband or partner or ex-husband or ex-partner²⁹. Three questions were used to identify women who had experienced IPV: Have you ever as an adult been physically abused by a husband, boyfriend, or female partner? Have you ever been hit, slapped, kicked, pushed or shoved or otherwise physically hurt by a current or previous husband, boyfriend or female partner? Have you ever been forced into sexual activities by a husband, boyfriend, or female partner? Two hundred one (201) women responded "yes" to one or more of these questions and indicated that the abuse occurred between 1989 and 1997. These women were selected as cases and participated in an in-depth interview. The restriction on time period for the abuse was chosen to allow for development of health consequences without substantially interfering with the woman's ability to recall severity or other descriptive characteristics. A random sample of 240 women was drawn from those who reported never being abused and having had an intimate relationship. These women also participated in the same in-depth interview. Respondents to the in-depth interview received \$15 compensation for their time sent by check to an address of their choice. A protocol derived from Holly Johnson's Canadian domestic violence telephone survey safety protocol was used³⁰.

Measures

Overall general health was measured using the general health perceptions subscale of the Medical Outcomes Study (MOS SF-36) which has established reliability for diverse populations³¹. Physical health problems were measured by a modification of the Miller Abuse Physical Symptoms and Injury Scale (MAPSAIS). This self report scale asks lists 25 injuries, conditions, symptoms and illnesses related to domestic violence and asks if the woman visited a

doctor or nurse for this problem in the last 12 months. The scale was designed specifically for measuring long term health consequences of battering. Content validity was established by an expert panel and its test-retest reliability over a two year period on the history of violent injury portion was .63³². The Chronbach's alpha test for reliability of the MAPSAIS in this study was .67.

In addition to specific health problems, 8 gynecological related symptoms or conditions (GYN), 5 chronic stress related symptoms or conditions (ChS), and 4 central nervous problems (CNS) were clustered as indicated in TABLE 3. Internal relatedness was moderate among the items in the groups as shown by Spearman Rho correlations between all possible pairs in each grouping (GYN: 14 of 21 pairs, ChS: 6 of 10 pairs, and CNS: 4 of 6 pairs; $p \leq .05$).

Demographics

The sociodemographic characteristics of the sample are displayed in Table 2. Cases and controls differed significantly on all indicators except age. Cases were less likely to be college graduates, white, married or to have an annual household income of \$50,000 or more per year^a. Because of these differences in potential risk factors for IPV, weights were constructed in order to standardize the two groups on these factors , as described below.

Statistical Analysis

When calculating the differences in proportions between cases (abused) and controls (never abused), we employed methods of direct adjustment to account for the differences between the two groups in education, race, income, and marital status³⁴ . We chose as our standard population the group of women who were screened for eligibility for this study (N=2005). This group was viewed as most representative of the population of interest, that is, a group of active female HMO enrollees. Weights were assigned to each case and control. The weights were obtained by stratifying cases, controls and the standard population separately on

the four unbalanced variables. (Contrasts were: education (graduate degree, any college or four year college degree, high school degree or less); race (white, all other); annual household income (less than \$50,000, >\$50,000); and marital status (married, all others).) For each group, we identified the cell frequency for each stratum and then obtained stratum specific ratios of the cell frequency for the standard population. Then, for both cases and controls, we created weights by applying the stratum specific ratio to each person within each stratum.

All proportions presented are based on the weighted data. However, because the weighted sample is much larger than the actual number of abused and never abused women studied, standard hypothesis tests based on comparisons of means or proportions would produce incorrect significance levels (i.e. smaller standard errors). To circumvent this problem and obtain correct estimates of statistical significance, analyses of the presence or absence of a single health problem were conducted using logistic regressions that included regressors to control for the factors that were not balanced between the two groups. For counts of number of health problems, negative binomial regression was used. Negative binomial regression was chosen because it is a maximum likelihood method that is appropriate for over dispersed count data^b. Negative binomial regression, like its close "cousin" Poisson regression, has the added advantage that coefficient estimates can be easily transformed to give the incidence rate ratio (IRR)^c. This yields a result that can be interpreted as the percentage increase in total number of symptoms for cases relative to controls.

FINDINGS

General Health

^a Abused women may be more likely to be single or divorced because of decisions to leave abusive relationships. This would tend to lower their household incomes relative to never abused women who are more likely to be married with two incomes. (See Jones for further discussion of race and income differences as risk factors.³³)

^b Count data are frequently modeled using Poisson maximum-likelihood regression. However this distributional assumption requires that the mean of the data is equal to the variance. As is often the case with survey data, the variance of the study data was larger than the mean. Use of the negative binomial distribution relaxes the strict mean-variance relationship of the Poisson distribution, allowing the variance to exceed the mean.

^c The transformation is like that for logistic regression coefficients when one wants to express them as odds

When asked to assess their general health, similar proportions of abused and never abused women estimated their health as good. However, when extremes of health status were examined, statistically significant differences between the two groups were observed (TABLE 3). At the lower extreme, 12.4% of abused women rated their health as fair to poor compared to 5.8% of never abused women. At the other extreme, 34.8% of never abused women rated their health as excellent in contrast to only 25.5% of abused women

Physical Health Problems

Specific Physical Health Problems: Headache, backpain, vaginal infection and digestive problems are the most frequently reported problems in both groups (TABLE 3). However, all are reported more frequently by abused women ($p \leq .05$). Other, less frequently occurring problems demonstrate a similar pattern. Rates of the three groups of health problems are presented in TABLE 4. In every case, cases appear to experience higher numbers of problems.

Gynecological, Chronic Stress or Central Nervous System Related Clusters and Total Health Problems: To explore these relationships further, analyses of total physical health problems and physical health problem clusters were conducted. Negative binomial regression analyses of the total number of reported health problems indicated that abused women had a roughly 60% higher rate of all problems relative to never abused women (IRR: 1.58, C.I.: (1.34-1.86)) (TABLE 5). Negative binomial regression results indicate that IRR's average between 1.5 and 1.7 for the three health problem groups ($p \leq .001$).

Sexual Abuse and Health Problems: Of the women experiencing sexual abuse with or without physical abuse, 29.8% reported three or more gynecological health problems compared to only 7.5% of those with physical abuse alone and 6.2% of those never abused. FIGURE 1 indicates that women who were sexually abused (with or without physical abuse) were more likely to have had one or more stress-related (ChS) or CNS health problems compared to controls and physically abused women who do not report sexual abuse. Interestingly, women who report physical abuse without sexual abuse are as likely to report GYN problems as those who report

only sexual abuse. The greatest difference across the three levels of abuse is seen with ChS health problems where 77.6% of sexually abused women report at least one problem compared to 54.5% of physically abused women who did not report sexual abuse and 45% of never abused women. For both abuse categories, the probability that a woman reported at least one GYN, ChS or CNS health problem is at least 10 percentage points higher than among never abused women.

Timing of Abuse: Health problems were reported only for the 12 months preceding the interview, but abuse could have occurred as far back in time as 1989. For this reason, we examined reported health problems relative to the timing of the abuse (FIGURE 2). Gynecological and chronic stress related health problems appear to be slightly more sensitive to the temporal proximity of the abuse than do central nervous system health problems. Negative binomial regressions indicated that more health problems were reported when the lag between abuse and report was shorter (GYN: 1.47 (1.24 – 1.74); ChS: 1.40 (1.21 – 1.62); CNS: 1.29 (1.12 – 1.49). Never abused women were least likely to report problems.

Injuries: Very few women reported injuries (TABLE 6). The highest proportion of injuries ranged from 9.9-11% for sprains. The relationship between temporal proximity of abuse and injuries in the past year can be seen by comparing rates of women with abuse in the prior most recent 12 months to those with abuse prior to that. Facial injuries stand out with very different rates between the two groups (8.5% and 1.3%). However, other injuries appear to differ by amounts that may be clinically important as well (e.g., injuries requiring surgery (8.8% and 4.4%), bad burns (3.1% and 2.5%), and concussions (3.7% and 0.6%)). Some of these differences are fairly large (2 to 3 times as large), but do not achieve statistical significance probably because of the low frequency of occurrence. Also notice that for some injuries, the rates for women abused more than 12 months prior to interview and rates for never abused women are similar.

DISCUSSION

Limitations

Two major limitations of the study provide direction for future work. One is the absence of information about the women's experience of physical or sexual abuse during childhood. Silva and associates³⁵ found 53% of the battered women they studied reported a history of physical and/or sexual child abuse and Hulme³⁶ found 82% of women with a history of severe child abuse were battered as adults and had similar negative health consequences as summarized above. McCauley and associates³⁷ found that the battered women in her primary care sample who were also abused as children had long term health consequences over and above what could be attributed to the intimate partner violence. Thus, early abuse appears to be an equally grave risk factor for later health problems and should be investigated in future studies.

The other limitation we identified was the lack of an IPV and trauma history over time. Just as IPV over time with or without multiple abusive partners impacts a woman's physical health, so will all traumas that she experiences. Holman, Silver and Waitzkin³⁸ found 10% of 1456 adults interviewed in a low income primary care clinic had experienced a traumatic event in the last year and 57% at least one in their lifetime. Studies examining these relationships with physical health problems will lead to a better understanding of the role of IPV and other trauma in later health problems. However, each kind of trauma needs to be assessed separately for different diagnoses and appropriate treatments.

Relationship of Findings to Previous Research

Our findings of a relationship between previous abuse and gynecological, chronic stress related and central nervous system health problems are consistent with other findings of long term health problems related to sexual abuse genital injuries (gynecological problems)²², physical health problems aggravated by stress (chronic stress related problems)^{16,27} and neurological injuries (central nervous system problems)⁶.

The etiological mechanisms behind these findings have not been fully explored in prior research. This study attempted to verify the plausible hypothesis that the higher prevalence of GYN symptoms found here and in other studies was related to the sexual assault that so often accompanies physical violence in abusive relationships. In spite of this knowledge, forced sex has seldom been measured separately. It was interesting that as well as the usual overlap of physical and sexual abuse, 5% of the women reporting IPV in this sample had experienced intimate partner sexual assault as their only form of victimization. Increased STD's, pelvic pain, painful intercourse, fibroids and urinary tract infections make sense when reading battered women's descriptions of the forced anal and vaginal sex and other sex practices they have experienced from their partners^{41,42}. Abused women also describe their partners as having sex with other women but refusing to use safe sex practices and/or being afraid to try to negotiate condom use because of fear of further abuse^{22,43}.

Even so, the women reporting having experienced forced sex in this sample were no more likely to report GYN problems than those reporting only physical abuse. It is possible women under reported forced sex due to its intimate nature. We did not measure sexually controlling behaviors such as having affairs and refusing to use safe sex, and it may be that those abusive behaviors are just as problematic for women's gynecological health as sexual assault. Interestingly, the women also sexually assaulted were more likely to have CNS and stress related symptoms. This may reflect the deep shame related to any experience of sexual assault for women or that the forced sex was a proxy for a more severely abusive relationship¹⁸.

The higher rate of stress related physical symptoms in abused women found in this study are presumably not caused directly by IPV but indirectly through physiological response mechanisms. Three possibilities, that may be inter-related, to explain conditions such as hypertension and chronic irritable bowel syndrome are abuse exacerbating stress mechanisms or genetic factors or other lifestyle risks¹². Increased knowledge of stress depressing the immune system could be an explanation for the increased symptoms of colds and flu we found

and other cold symptoms found by Leserman and colleagues¹³. These explanations are not based on physiological research on a sample of battered women, but do provide support for such research regarding the etiology of increased stress related and immune suppression-related symptoms and syndromes in battered women.

Clinical Applications

Many of the symptoms that we and others have found related to intimate partner violence are difficult to diagnose and/or hard to treat or control. Providers who do not routinely screen for abuse will not necessarily have other indicators of IPV and may waste valuable time searching for other explanations or prescribing treatments that an abused woman will find impossible to follow (such as decreasing stress or using safe sex practices). This is one of the reasons that may health care professionals recommend routine screening for IPV according to a protocol developed by an interdisciplinary team of health care professionals expert in IPV⁴⁴. These guidelines recommend that women be screened in primary care settings at their periodic (especially gynecological) examinations as well as all visits for a new chief complaint.

Our findings regarding sexual abuse within an intimate relationship demonstrate the need to routinely ask specifically about that aspect of IPV. The Abuse Assessment Screen is a four question screen with established reliability and validity that has a separate forced sex question²⁸. Health care providers need to develop comfort in asking patients about sexual abuse, especially when seen for gynecological, chronic stress related or central nervous system health problems.

The proximity of abuse was related to higher numbers of health problems, but there was evidence that abused women remained less healthy over time. Physicians are becoming more aware of the immediate health problems associated with abuse, and now need to expand this awareness to those which persist or develop over time or are occurring after the woman has left the abusive relationship. Many women may not associate these problems with previous abuse and therefore may not disclose abuse.

Conclusions

Overall, the rates for injuries were only higher for women abused in the past year. If primary care providers only screen for IPV when women present with an injury they will miss the majority of abused women. For providers to reach out and identify the root cause of presenting complaints of previously abused women, routine universal screening and sensitive in depth assessment of women with ailments that may be related to chronic stress or neurological injuries or sexual assault is needed to support disclosure of past IPV. Routine assessment for IPV is a matter of women's long term health as well as their safety. The women in this sample indicated that routine screening is an acceptable practice for the majority, even those who have never been abused (see Gielen for full analysis and discussion)⁴⁵. This is a necessary, first step toward effective intervention.

REFERENCES

1. Tollestrup, K, Sklar, D, Frost, FJ, Olson, L, Weybright, JE, Sandvig, J & Larson, M. Health indicators and intimate partner violence among women who are members of a managed care organization. *Prev Med* 1999; 29: 431-440.
2. Wisner, CL, Gilmer, TP, Saltzman, LE, Zink, TM. Intimate partner violence against women. Do victims cost health plans more? *J Fam Prac* 1999; 48:6:439-443.
3. McCauley, J, Kern, DE, Kolodner, K, Derogatis, LR, Bass, EB. Relation of low severity violence to women's health. *J Gen Intern Med* 1998; 13:687-691.
4. Tjaden, P & Thoennes, N. Extent, nature and consequences of intimate partner violence. Washington, DC: US Department of Justice pub No NCJ 181867; July, 2000.
5. Mullerman, R, Lenaghan, PA, & Pakieser RA. Battered women: Injury locations and types. *Ann Emer Med* 1996; 28: 486-492.
6. Diaz-Olavarrieta, C, Campbell, JC, Garcia de la Cadena, C, Paz, F, Villa, A. Domestic violence against patients with chronic neurologic disorders. *Arch Neuro* 1999;56:681-685.
7. Toomey, TC, Hernandez, JT, Gittleman, DF, Hulka, JF. Relationship of sexual and physical abuse to pain and psychological adjustment variables in chronic pelvic pain patients. *Pain* 1993;53:105-109.
8. Zachariades, N, Koumoura, F, Konsolaki-Agouridaki, E. Facial trauma in women resulting from violence by men. *J Oral Maxl Surg* 1990; 48:1250-1253.
9. Karol, RL, Micka, RG, Kuskowski, M. Physical, emotional, and sexual abuse among pain patients and health care providers: Implications for psychologists in multidisciplinary pain treatment centers. *Prof Psych Res & Prac* 1992;23:6:480-485.
10. Rapkin, AJ, Kames,LD, Darke, LL, Stampler, FM, & Naliboff, BD. *Ob Gyn* 1990; 76:92-96.
11. Cascardi, M, Langhinrichsen, J, & Vivian, D. Marital aggression: Impact, injury and health correlates of husbands and wives. *Arch Intern Med* 1992; 152: 357-363.

12. Drossman, DA, Talley, NJ, Leserman, J, Olden, KW, Barreiro, MA. Sexual and physical abuse and gastrointestinal illness. Review and recommendations. *Ann Intern Med.* 1995;123:10:782-794.

13. Leserman, J Li, D, Drossman, DA, & Hu YJB. Selected symptoms associated with sexual and physical abuse among female patients with gastrointestinal disorders: The impact on subsequent health care visits. *Psych Med* 1998; 28:417-425.

14. Kerouac, S., Taggart, ME, Lescop, J, Fortin, MF. Dimensions in health in violent families. *Hlth C Wo Intl* 1986; 8:413-426.

15. Letourneau, EJ, Holmes, M, Chasendunn-Roark, J. Gynecologic health consequences to victims of interpersonal violence. *Wo Hlth Issues* 1999; 9:2: 115-120.

16. Koss, MP & Heslet L. Somatic consequences of violence against women *Arch Fam Med* 1992; 1:53-59.

17. Plichta SB. Violence and abuse: Implications for women's health in Falik MK, Collins KS (eds) *Women's Health, the Commonwealth Fund Survey*. Baltimore MD: The Johns Hopkins University Press; 1996.

18. Campbell, JC & Soeken K. Women's responses to battering over time analysis of change. *J Int Vio.* 1999; 14: 21-40.

19. Campbell, JC. Women's responses to sexual abuse in intimate relationships. *Wo Hlth C Intl.* 1989; 8:335-347.

20. Schei, B & Bakketeig, LS (1989) Gynaecological impact of sexual and physical abuse by spouse. A study of a random sample of Norwegian women. *B J Ob Gyn* 1989; 96:1379-1383.

21. Schei, B. Physically abusive spouse – a risk factor of pelvic inflammatory disease? *Scan J Prim Hlth C* 1991; 9:41-45.

22. Eby, KK, Campbell, JC, Sullivan, CM, Davidson, WS 2nd. Health effects of experiences of sexual violence for women with abusive partners. *Hlth C Wo Intl* 1995;16:6:563-576.

23. Plichta SB & Abraham C. Violence and gynecologic health in women less than 50 years old. *AJ Ob Gyn* 1996; 174:3:903-907.

24. McCauley J, Kern, DE, Kolodner, K, Dill, L, Schroeder, AF, DeChant, HK, Ryden, J, Bass, EB, Derogatis, LR. (1995) The "battering syndrome": Prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. *Ann Intern Med* 1995; 123:10:737-746.

25. Coker, AL, Smith, PH, Bethea, L, King MR, McKeown, RE. Physical health consequences of physical and psychological intimate partner violence. *Arch Fam Med* 2000a; 9:451-7.

26. Campbell, JC & Lewandowski, L. Mental and physical health effects of intimate partner violence on women and children. *Psych Clinics of No Amer* 1997;20:2:353-374

27. Sutherland, C, Bybee, D, Sullivan, C. The long-term effects of battering on women's health. *Wom Hlth Res Gen Beh & Pol* 1998; 4:d1:41-70.

28. Soeken, K, L, McFarlane, J, Parker, B, Lominack, MC. The abuse assessment screen: a clinical instrument to measure frequency, severity, and perpetrator of abuse against women. In Empowering Survivors of Abuse; Health Care for Battered Women and Their Children by Jacquelyn Campbell (Ed.) Thousand Oaks, CA: Sage Publications; 1998: 195-203.

29. Campbell, JC & Humphreys, JC. Nursing care of survivors of family violence. St Louis: Mosby. 1993.

30. Johnson, H & Sacco, VF. Researching violence against women: Statistics Canada's national survey. *Canadian J Crim* 1995;281-304.

31. McHorney, C, Ware, J, Lu, JF, Sherbourne, CD. The MOS 36 item short form health survey (SF-36): III. Tests of data quality, scaling, assumptions, and reliability across patient groups. *Med Care* 1994; 32:40-66.

32. Miller, CD & Campbell, JC. Reliability and validity of the Miller Abuse Physical

Symptom Injury Assessment Scale (MAPSAIS). Midwest Nursing Research Society, Chicago, IL; 1993.

33. Jones, AS, Campbell, JC, Schollenberger, J, O'Campo, PJ, Dienemann, JA, Gielen, AC, Kub, J, Wynne, EC. Annual and lifetime prevalence of partner abuse in a sample of female HMO enrollees. *Womens Health Issues* 1999; 9:6:295-305.
34. Kahn, H. & Sempos, C. *Statistical Methods in Epidemiology*. New York: Oxford University Press; 1989.
35. Silva, C, McFarlane, J, Soeken, K, Parker, B, Reel, S. (1997) Symptoms of post traumatic stress disorder in abused women in a primary care setting. *J Womens Health* 1997;6:5:543-552.
36. Hulme, PA . Symptomology and health care utilization of women primary care patients who experienced childhood sexual abuse. Unpublished Ph.D. dissertation, University of Iowa, Iowa City, IA, 1997.
37. McCauley, J, Kern, DE, Kolodner, K, Dill, L, Schroeder, AF, DeChant, HK, Ryden, J, Derogatis, LR. Clinical characteristics of women with a history of childhood abuse: Unhealed wounds. *JAMA* 1997; 277:17:1362-1368.
38. Holman, EA, Silver, RC, Waitzkin, H. Traumatic life events in primary care patients. *Arch Fam Med* 2000; 9:9:802-810.
39. Coker, AL, Smith, PH, McKeown, RE, King, MJ. Frequency and correlates of intimate partner violence by type: Physical, sexual and psychological battering. *AJPH* 2000b; 90:4:553-559.
40. Schafer, JR, Caetano, C & Clark, CL. Rates of intimate partner violence in the United States. *AJPH* 1998; 88:11:1702-1704.
41. Campbell, JC & Alford P. The dark consequences of marital rape. *AJN* 1989;89:7:946-949.
42. Champion, JD & Shain, RN. The context of sexually transmitted disease: life histories of woman abuse. *Issues in MHN*; 19:463-480.

43. Davilla YR & Brackley, MH. Mexican and Mexican American women in battered women's shelter: barriers to condom negotiation for HIV/AIDS prevention. *Issues in MHN* 1999;20:333-355.

44. Family Violence Prevention Fund. Preventing domestic violence: Clinical guidelines on routine screening. San Francisco, CA: Author 1999.

45. Gielen, AC, O'Campo, PF, Campbell, JC, Schollenberger, J, Woods, N, Jones, AS, Dienemann, JA, Kub, J, Wynne, EC. Domestic violence screening and reporting by health care providers: women's opinions and policy preferences. *J Prev Med* 2000; 19:4:279-285.

McCauley, J, Kern DE, Kolodner, K, Dill, L, Schroeder, AF, DeChant, HK, Ryden, J, Bass, EB, Derogatis, L (1995) The "Battering Syndrome": Prevalence and clinical characteristics of domestic violence in primary care internal medicine practices *Annals of Internal Medicine* 123 (10) 737-746.

Coker AI, Smith, PH, Bethea, L, King, MR, McKeown, RE (2000) Physical health consequences of physical and psychological intimate partner violence. *Archives of Family Medicine* 9:451-457.

Leserman, J Li, D, Drossman, DA, & Hu YJB (1998) Selected symptoms associated with sexual and physical abuse among female patients with gastrointestinal disorders: The impact on subsequent health care visits.

Plichta SB (1996) Violence and abuse: Implications for women's health in Falik, MK, Collins, KS (eds) *Women's Health, the Commonwealth Fund Survey*. Baltimore, MD The Johns Hopkins University Press.

TABLE 1: Physical Symptoms examined in this study and examined in four other studies for battered women with significance calculated compared to never battered women.

Item from this study is Underlined, related item From other studies listed	Mc Cauley & Assoc 1995	Coker & Assoc 2000*	Leserman & Assoc 1998	Plichta 1996
<u>General health</u> lower or Overall # symptoms higher	S	S	S	S
<u>Digestive problem</u> , Diarrhea or constipation or spastic colon or nausea	S	S	NM	NM
<u>Loss of appetite</u> or Eating binges or making self vomit	S	NM		NM
<u>Abdominal pain</u> or stomach pain	S	NM	NM	NM
<u>Urinary Tract Infections</u> or problem passing urine or bladder/kidney infection or pain with urination	S	S		S
<u>Vaginal infection</u> or discharge, recurrent vaginal infections or vaginal discharge/itching	S	NM	S	NM
<u>STD</u>	NM	S	NM	NM
<u>HIV</u> , AIDS/HIV	NM	NM	NM	NM
<u>Vaginal bleeding</u> , Severe Menstrual Problems or dysmenorrhea	NM	NM	NM	NM
<u>Pelvic pain</u> or pain in pelvis or genital area or chronic pelvic pain	S	S	S	NM
<u>Fibroids</u> or hysterectomy	NM	S	NM	NM
<u>Painful intercourse</u> or sexual dysfunction	NM	S	S	NA
<u>Headaches</u> or migraines or frequent or severe headaches	S	S	S	S
<u>Fainting</u> or passing out or faintness	S	NM	S	S
<u>Seizures</u> , frequent seizures or convulsions	NM	S	NM	NM
<u>Back pain</u> , chronic neck or back pain or frequent backaches		S	S	S
<u>Flu or cold</u> , or stuffy or runny nose	NM	NM	S	NM
<u>High blood pressure</u> or Hypertension	NM	S	NM	NM

NM = Not measured in study

S = significant <.05 or lower; or RR (95% CI) 1.0 or higher

blank = not significant

* Results weighted and significance reported as relative risk ratios.

Figure 1. Proportion of women reporting one or more health problem by type of abuse

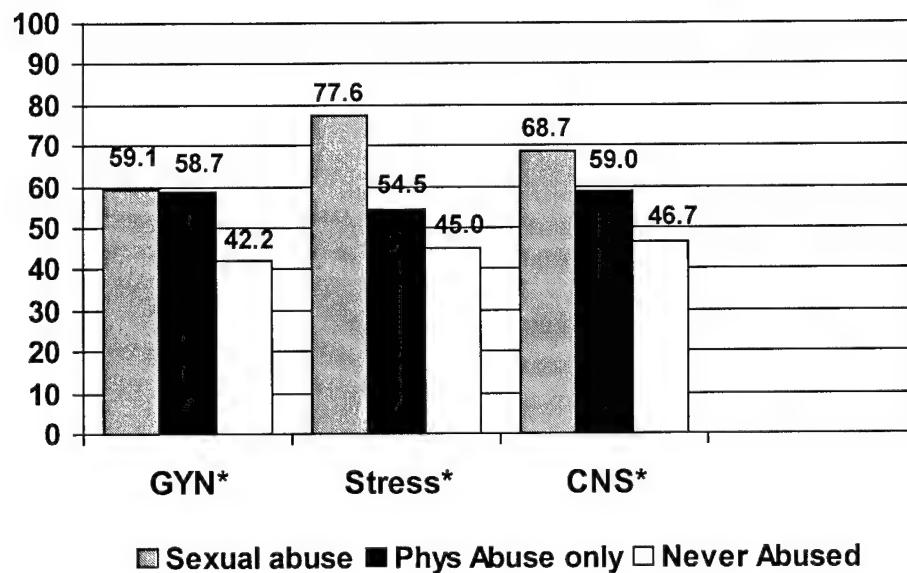


Figure 2. Proportion of women reporting one or more health problems by timing of abuse (Weighted)

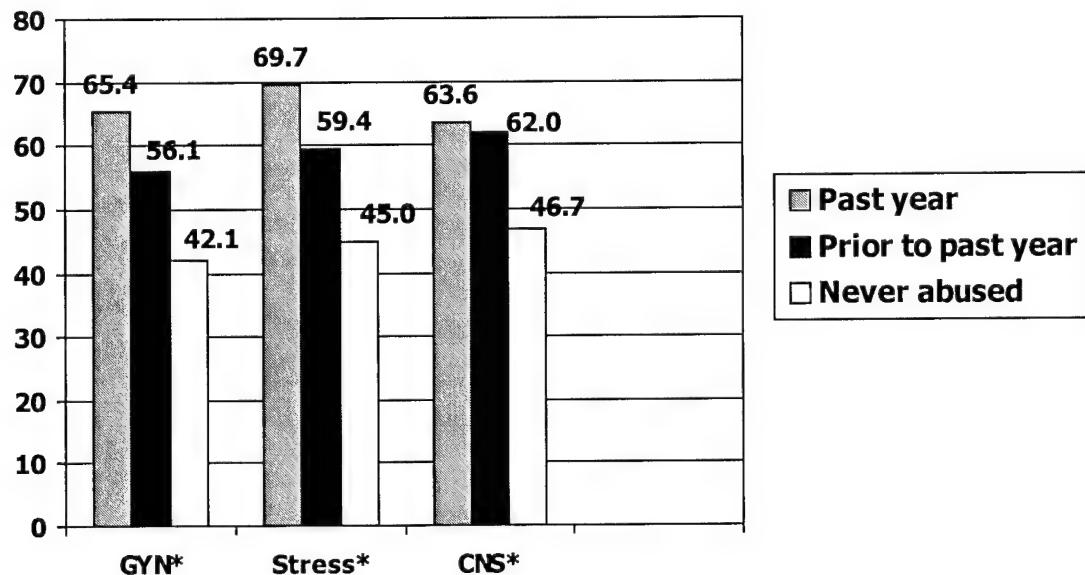


Table 2. Sociodemographic characteristics of abused and never abused women (unweighted)

	Abused n=201		Never Abused n=240		Significance
	n	%	n	%	
Age					NS
21-29	28	13.9	23	9.6	
30-39	61	30.3	81	33.8	
40-49	90	44.8	106	44.2	
50-56	22	10.9	30	12.5	
Ethnicity					<.05
African American	109	54.2	97	40.8	
White European	83	41.3	131	55.0	
Other	9	4.5	10	4.2	
Marital Status					<.01
Married	73	36.3	115	47.9	
Divorced/separate	50	24.9	36	15.0	
Widowed	33	16.4	7	2.9	
Single	45	22.4	82	34.2	
Education					<.01
<HS	2	1.0	5	2.1	
HS	31	30.3	39	16.3	
Some college *	69	34.3	61	27.5	
4 year degree	43	21.4	73	30.4	
Postgraduate	26	12.9	57	23.8	
HH Income					<.01
<30K	46	23.6	36	15.3	
30K - <50K	71	36.4	65	27.5	
50K - <80K	48	24.6	72	30.6	
>80K	30	15.4	62	26.4	

Table 3. Perceptions of General Health and Health Problems Reported by Abused and Never Abused Women in Past Year (weighted)

Group		Abused***		Never Abused	
		n	%	n	%
General Health	Excellent health*	250	25.5	349	34.8
	Poor health*	122	12.4	58	5.8
CNS	Headaches*	473	48.3	349	34.8
	Fainting	66	6.7	26	2.6
	Back Pain**	389	39.7	252	25.2
	Seizures	4	0.4	0	0
GYN	STD**	63	6.4	23	2.3
	HIV	5	0.5	22	2.2
	Vaginal bleeding**	165	16.8	65	6.5
	Vaginal infection**	297	30.3	212	21.2
	Pelvic pain*	169	17.2	86	8.6
	Painful intercourse**	126	12.9	69	6.9
	Fibroids	111	11.3	143	14.3
	Urinary infection*	216	22.3	125	12.5
	High blood pressure	137	14.0	111	11.1
ChS	Loss of appetite*	89	9.1	31	3.1
	Abdominal pain*	211	21.6	112	11.2
	Digestive problem*	345	35.2	192	19.2
	Bad Cold or flu	292	29.8	217	21.7

* p <.05

** p <.01

***Abuse occurred between 1989 and 1997

Note. Levels of statistical significance based on unweighted logistic regression controlled for marital status, race, education and income.

Table 4. Health problem categories experienced by abused and never abused women and percent of women (weighted)

Health Problems	Abused		Never Abused	
	n	%	n	%
Gynecological				
No health problems	404	41.2	580	57.8
One health problem	257	26.2	195	19.4
Two health problems	168	17.1	166	16.6
Three or more	151	15.4	62	6.2
Chronic stress				
No health problems	449	45.9	631	62.9
One health problem	356	36.4	286	28.5
Two health problems	119	12.2	70	7.0
Three or more	55	5.6	16	1.6
Central Nervous				
No health problems	368	37.6	535	53.3
One health problem	318	32.4	314	31.3
Two health problems	269	27.4	150	15.0
Three or more	25	2.6	4	0.4
Total				
No health problems	102	10.4	233	23.2
One health problem	141	14.4	257	25.6
Two health problems	190	19.4	171	18.0
Three or more	547	55.8	333	33.2

GYN: STD's, HIV, abnormal vaginal bleeding, vaginal infection, pelvic pain, painful intercourse, fibroids, urinary tract infection

Chronic Stress: high blood pressure, frequent loss of appetite, abdominal pain, constipation, diarrhea, digestive problems, cold or flu

Central Nervous problems: headaches, fainting, seizures, back pain

TABLE 5: Relative increase in the rate of health problems, abused versus never abused women. (Unweighted negative binomial regression)

Health Problems	Incidence Rate Ratio	Confidence Intervals		P value
Gynecological	1.67	1.29	2.17	< .001
Chronic Stress	1.57	1.25	1.98	< .001
Central Nervous	1.49	1.19	1.87	< .001
All Health Problems	1.58	1.34	1.86	< .001

Table 6. Proportion of injuries by timing of abuse. (Weighted)

	Abused in Past Year		Abused Prior to Past Year		Never Abused	
	n	%	n	%	n	%
Injuries requiring surgery	26	8.8	30	4.4	49	4.9
Broken bones	4	1.4	46	6.7	26	2.6
Injuries requiring stitches	10	3.4	28	4.1	19	1.9
Sprains	30	10.2	68	9.9	110	11.0
Bad burns	9	3.1	17	2.5	26	2.6
Concussion	11	3.7	4	0.6	9	0.9
Facial Injuries***	25	8.5	9	1.3	4	

*** P < .001, based on unweighted logistic regression coefficient

Women's Opinions About Domestic Violence Screening and Mandatory Reporting

Andrea Carlson Gielen, ScD, ScM, Patricia J. O'Campo, PhD, Jacquelyn C. Campbell, PhD, RN, FAAN, Janet Schollenberger, MHS, Anne B. Woods, RN, Alison S. Jones, PhD, Jacqueline A. Dienemann, PhD, RN, FAAN, Joan Kub, PhD, RN, E. Clifford Wynne, MD

Background: The purpose of this paper is to describe women's opinions and policy preferences concerning domestic violence screening and mandatory reporting.

Methods: This case-control study included 202 abused women and 240 randomly selected non-abused women recruited from a large metropolitan health maintenance organization who were interviewed by telephone. Of these women, 46.6% had a college degree, 53.4% were white, and 60% had a household income of \$50,000 or more.

Results: Forty-eight percent of the sample agreed that health care providers should routinely screen all women, with abused women 1.5 times more likely than non-abused women to support this policy. For mandatory reporting, 48% preferred that it be the woman's decision to report abuse to the police. Women thought it would be easier for abused women to get help with routine screening (86%) and mandatory reporting (73%), although concerns were raised about increased risk of abuse with both screening (43%) and reporting (52%) policies. Two thirds of the sample thought women would be less likely to tell their health care providers about abuse under a mandatory reporting policy. Interventions offered in managed care settings that would be well received, according to the women in this study, include counseling services, shelters, and confidential hotlines.

Conclusions: Women expressed fears and concerns about negative consequences of routine screening and, even more so, for mandatory reporting. Domestic violence policies and protocols need to address the safety, autonomy, and confidentiality issues that concern women.

Medical Subject Headings (MeSH): domestic violence, spouse abuse, mandatory reporting, battered women, health personnel, preventive health services (Am J Prev Med 2000;19(4): 279-285) © 2000 American Journal of Preventive Medicine

Introduction

It is now well established that domestic violence (DV) is a widespread problem with serious consequences for women's physical and mental health and their use of health services.¹⁻⁷ Without identification, abused women are denied documentation for future reference in court cases, education on prevention, safety planning, options for leaving the abuse, and referrals to resources in the community.⁸ Many professional health care organizations have called for routine screening of women for intimate partner violence (IPV).⁹⁻¹¹ In addition, six states have mandated that

health care providers report IPV to the criminal justice system.^{12,13}

Both screening and mandatory reporting are controversial because of a lack of demonstrated effectiveness in reducing the risk of violence and because of concerns about infringing on women's autonomy.^{12,14-16} These debates about screening and reporting protocols should be informed by an understanding of women's policy preferences. Incorporating the perspective of the intended audience in policy development is not only respectful of individuals' autonomy and privacy, but should also lead to initiatives that are more widely supported and, thus, more likely to reach the goal of protecting women from further abuse.

Only two studies could be found that address abused and non-abused women's preferences for DV screening and reporting in health care settings. In an anonymous survey, 1128 women from 11 community emergency departments (EDs) were queried.¹⁷ Although 80% to 97% of all women agreed with routine screening in the ED, those who were being abused currently or recently

From the Department of Health Policy and Management, Center for Injury Research and Policy (Gielen, Jones), Department of Family and Population Health Sciences (O'Campo), and the School of Nursing (Campbell, Schollenberger, Woods, Dienemann, Kub), Johns Hopkins University School of Public Health, Baltimore, Maryland; and Kaiser-Permanente (Wynne), Washington, DC

Address correspondence and reprint requests to: Andrea C. Gielen ScD, ScM, Johns Hopkins University School of Public Health, 624 N. Broadway, Baltimore, MD 21205. E-mail: agielen@jhsph.edu.

were significantly less likely to agree than women who were not being abused. Similarly, although 92% of non-abused women agreed with mandatory reporting police, significantly fewer of the currently abused (6%) and recently abused (82%) women did so. Caralis and Musialowskie¹⁸ interviewed 406 female patients in ambulatory clinics in a medical center that served veterans. Of these patients, 85% agreed that physicians should routinely screen women, and 79% thought that physicians should report abuse, findings that did not differ between abused and non-abused women.

In our study of a large, ethnically diverse sample of women enrolled in a health maintenance organization (HMO), we addressed the following aims: (1) to describe women's opinions and policy preferences about DV screening and mandatory reporting, (2) to compare these opinions and preferences between abused and non-abused women, (3) to examine the extent to which sociodemographic characteristics and disclosure of abuse are associated with women's opinions and policy preferences, and (4) to describe women's preferences for services that HMOs should provide to abused women.

Methods

Subject Recruitment

The study was approved by the Johns Hopkins University Institutional Review Board (IRB), the U.S. Army Research IRB, and the participating HMO's national and regional IRBs. Letters asking women to participate in a women's health survey were sent to a total of 21,426 female enrollees of a metropolitan Washington, DC-area HMO in two separate mailings in fall 1997 and fall 1998. Women were selected for the mailing if they were between the ages of 21 and 55 years at the time of the recruitment and had been enrolled continuously in the HMO from 1995 through 1997. For safety reasons, no reference to "abuse" was made in the recruitment letter. Twelve percent or 2535 women returned consent forms that gave permission for our interviewers to call. Of these women, 447 (17.6%) could not be located. Of those located, 76 (3.6%) refused to participate and 7 (<1%) were ineligible because they were no longer in the HMO. Thus, a total of 2005 women completed the telephone screening interview, from which case and control subjects were selected.

Definition of Case and Control Subjects

Women were screened for two dimensions of abuse (physical or sexual), using a modified Abuse Assessment Screen.^{19,20} First, women were considered to have been physically abused if they answered yes to either of the following two questions: "Have you ever as an adult been physically abused by a husband, boyfriend, or female partner?" and "Have you ever hit, slapped, kicked, pushed, or shoved, or otherwise sexually hurt by a current or previous husband, boyfriend, or female partner?" Women were classified as having been sexually abused if they gave a positive response to "Have you

ever, as an adult, been forced into sexual activities by a husband, boyfriend, or female partner?" Dates of the abuse were recorded, and women who reported having been physically or sexually abused since 1989 were selected as case subjects. Women who answered no to all three of these questions were eligible to be control subjects. A random selection process was programmed into the Computer Assisted Telephone Interview (CATI) system such that one of every nine eligible control women were selected.

Sample

Immediately after completing the screening interview, women selected as case and control subjects were asked to participate in an in-depth interview, which required an average of 25 minutes to complete. Among 231 case subjects asked to participate, 202 (87.4%) completed the in-depth interview and 29 (12.6%) refused. Of the 264 control subjects asked to participate, 240 (90.9%) completed the interview and 24 (9.1%) refused.

Measures

In addition to standard demographic variables, the survey included items to measure women's opinions, operationalized as beliefs about the consequences of routine screening and mandatory reporting. This process was introduced by reading, "We are interested to know how women who experience abuse can be assisted. Every woman's perspective is unique and valuable. Please tell me if you agree or disagree with the following items." Beliefs about the consequences of routine screening were measured by reading women six items (Table 1). Women's policy preference for routine screening was then ascertained with the answer to a single yes or no item, "Do you think doctors and nurses should ask all women at all visits if they are being physically or sexually abused?"

For beliefs about the consequences of mandatory reporting, women were asked: "If health care providers were required by law to report abuse to the police, do you agree or disagree that the following will happen" and five items followed (Table 1). Women's policy preference for mandatory reporting was ascertained by the following item: "Two ways have been proposed for how health providers should respond when a woman says she is abused. I'd like to know which one you think is better: The health care provider is required by law to report the abuse to the police; or it is up to the woman to decide if the health provider reports the abuse to the police" (Table 1).

Abused women were asked if they had ever talked about their abuse with a health care provider and, if so, to rate how helpful the provider was on a 4-point scale from "not helpful" to "entirely helpful." A final open-ended item was included, asking abused women what services they thought their health plan should offer to help abused women. Interviewers recorded verbatim responses, which were data entered, coded, and tallied.

Statistical Analyses

We employed multivariate regression for significance testing and adjustment methods to obtain prevalence rates. Because case and control subjects were significantly different in education, income, race, and marital status (Table 2), all com-

Table 1. Women's beliefs and policy preferences concerning routine screening and mandatory reporting, weighted proportions

	Agreeing with item (%)		
	Total sample (N=1988)	Case subjects abused women	Control subjects non-abused women
Consequences of routine screening			
Women would be offended or embarrassed	48.9	48.2	49.6
Women who are not being abused would be insulted	27.6	33.4	22.3
It would be easier for abused women to get help	86.1	85.2	87.0
Abused women might lose their health insurance	11.0	10.4	11.7
It would put women at more risk for being hurt by their abuser	42.9	39.5	46.3
Women would be glad someone took an interest	95.6	96.9	94.3
Consequences of mandatory reporting			
Women would find it easier to get help	73.1	71.5	74.7
Women would be at greater risk for being abused	52.0	54.2	50.0
Women would like having someone else be responsible for calling the police	85.8	81.1	90.4
Women would be less likely to tell their health care provider about the abuse	67.3	68.0	66.7
Women would resent losing control over when to call the police	41.7	45.0	38.6
Policy preferences			
Agree that health care providers should routinely screen all women for physical and sexual abuse at all visits	47.8	54.5	41.5
Prefer that reporting abuse to police is the woman's decision	47.6	53.7	42.1

parisons of these two groups had to account for these differences.

Regression

All statistical testing for differences in beliefs and policy preferences between case and control subjects was accomplished with the use of SPSS software²¹ and employed methods of multiple logistic regression that allowed us to examine the association of case and control status and to adjust for the variables on which the two groups differed. All regression models contained indicator variables for case or control status, education, income, race, and marital status; $p<0.05$ was used as the criterion for statistical significance. Odds ratios (OR) and 95% confidence intervals (CI) are presented for all statistically significant variables. When comparing within cases for those who disclosed their abuse versus those who did not (Table 3), chi-square statistics computed on the unweighted data were used.

Standardization

When calculating the proportions for the two groups of women holding certain beliefs or preferring certain policies, we employed methods of direct adjustment to account for the differences in the two samples with respect to education, race, income, and marital status. For the direct adjustment to obtain proportions for case and control subjects, we identified a "standard" population that would ensure comparability on education, race, income, and marital status.²² We chose as the standard population the group of women who were screened for eligibility for our study (N=2005), which was thought to be ideal as these women represent the population to which we wish to generalize results—that is, a group of HMO enrollees.

To accomplish the standardization, we assigned weights to each of the case and control subjects. We obtained weights by stratifying the case and control subjects, separately, on four adjustment variables: edu-

Table 2. Sociodemographic characteristics

	Case subjects abused women (n=202)	Control subjects non-abused women (n=240)	Total sample (n=442)	Weighted sample (n=1988)
Education* (% college graduate)	34.2	54.2	45.0	46.6
Ethnicity* (% white)	40.6	55.0	48.4	53.4
Marital status* (% married)	37.1	47.5	42.8	57.6
Household income* (% $\geq \$50,000$ /year)	39.8	57.0	49.2	60.0
Age (% <40 year)	55.0	55.8	55.4	53.9

* $p<0.05$ by χ^2 analysis.

Table 3. Multiple logistic regression analysis of women's beliefs and policy preferences concerning routine screening and mandatory reporting among 202 abused women and 240 non-abused women, odds ratios (95% confidence intervals)

Beliefs about consequences and policy preferences	Case/control status (abused vs non-abused)	Ethnicity (African-American vs white/other)	Income (<\$50,000 vs ≥\$50,000)	Education (<college vs other)	Marital status (married vs other)
Routine screening					
Women would be offended or embarrassed	—	2.27 (1.48–3.49)	—	—	—
Women who are not being abused would be insulted	1.72 (1.10–2.68)	1.85 (1.15–2.97)	—	—	—
Abused women might lose their health insurance	—	—	—	0.50 (0.25–1.02)	—
It would put women at more risk for being hurt by their abuser	—	1.50 (0.97–2.32)	—	1.60 (1.03–2.48)	—
Women would be glad someone took an interest	—	—	0.30 (0.11–0.88)	—	—
Mandatory reporting					
Women would find it easier to get help	—	1.61 (0.98–2.65)	—	—	—
Women would like having someone else be responsible for calling the police	0.50 (0.27–0.92)	—	—	—	—
Women would resent losing control over when to call the police	—	—	1.52 (0.96–2.42)	—	0.62 (0.4–0.9)
Policy preferences					
Agree that health care providers should routinely screen all women for physical and sexual abuse at all visits	1.53 (1.02–2.3)	—	—	—	—
Prefer that reporting abuse to police is the woman's decision	1.41 (0.93–2.13)	0.54 (0.35–0.83)	—	—	—

cation (graduate degree vs up to a four-year college degree vs high school degree or less), race (white vs all others), annual household income (<\$50,000 vs ≥\$50,000), and marital status (married vs all others). For case subjects, control subjects, and the standard population, we identified the number of women within the 24 strata of education, race, income, and marital status. We then obtained strata-specific ratios of standard population to the case and control subjects. We created the weights (separately for case and control subjects) by applying the strata-specific ratio to each woman within the strata. We applied the weights such that the case and control subjects would each represent half the standard population, as they are approximately equal in number when not weighted. All proportions presented concerning the sample of case and control subjects are based on the weighted data. Because the weighted data are much larger in size than our case and control population, performing statistical tests on the weighted population would result in inappropriate *p* values; therefore, statistical tests were performed with the use of the multivariate logistic regression method with unweighted data described above.

Results

Sample

Abused and non-abused women differed significantly on all indicators except age (Table 2). Abused women were less likely to be college graduates, white, married, or have an annual household income of ≥\$50,000 per year.

Beliefs About the Consequences of Routine Screening and Mandatory Reporting

Virtually all women (86%) agreed that routine screening would make it easier for abused women to get help, 96% agreed that they would be glad someone took an interest, and 11% thought that women might lose their health insurance (Table 1). Almost three quarters of the sample thought mandatory reporting would make it easier for abused women to get help; at the same time, two thirds thought that women would be less likely to tell their health care provider, and one half of the sample thought it would put women at increased risk from their abuser (Table 1).

Table 4. Abused women's beliefs and policy preferences concerning routine screening and mandatory reporting by disclosure of abuse to health care provider^a

	Agreeing with item		
	Disclosed (%)	Did not disclose (%)	p value*
Consequences of routine screening			
Women would be offended or embarrassed	47.9	60.4	0.13
Women who are not being abused would be insulted	35.4	37.7	0.86
It would be easier for abused women to get help	77.1	86.3	0.17
Abused women might lose their health insurance	12.8	9.0	0.57
It would put women at more risk for being hurt by their abuser	29.2	46.1	0.04
Women would be glad someone took an interest	91.8	93.2	0.47
Consequences of mandatory reporting			
Women would find it easier to get help	63.3	76.6	0.07
Women would be at greater risk for being abused	47.7	55.6	0.39
Women would like having someone else be responsible for calling the police	79.2	80.6	0.84
Women would be less likely to tell their health care provider about the abuse	55.3	71.3	0.04
Women would resent losing control over when to call the police	39.6	45.3	0.51

*Based on chi-square analysis.

^an varies between 180 and 195 because of elimination of "don't know" responses.

After the adjustment for socioeconomic variables, abused women relative to non-abused women were 1.7 times more likely to believe that routine screening would insult women who are not being abused and 1.5 times more likely to believe that it would put women at more risk for being hurt by their abuser (Table 3). Controlling for abuse status and other sociodemographic variables, African-American women relative to women of other ethnic groups were more likely to think that routine screening would offend, embarrass, and insult women, although they were more likely to believe that mandatory reporting would make it easier for women to get help. Women with family incomes <\$50,000 compared with higher-income women were significantly less likely to think that routine screening would make women feel "glad someone took an interest" and significantly more likely to think that mandatory reporting would make women resent losing control over when to call the police.

Policy Preferences for Routine Screening and Mandatory Reporting

A higher proportion of abused women than non-abused women supported routine screening (54% vs 42%) and preferred a policy under which reporting abuse is the woman's decision (54% vs 42%) (Table 1). Abused women relative to non-abused women were 1.5 times more likely to support routine screening and 1.4 times more likely to prefer woman-controlled reporting over mandatory reporting by health providers, adjusting for sociodemographic variables (Table 4). Of all the sociodemographic variables examined, only ethnicity was a significant correlate of policy preferences: African-American women were less likely than women of

other ethnic groups to support woman-controlled reporting over mandatory reporting by health providers.

Disclosure of Abuse to Health Care Providers

Of the 202 abused women, 51 (25.4%) had talked to a health care provider about the abuse; of those women, 9.8% said the experience was not helpful, whereas 74.5% said it was either somewhat or entirely helpful. Women who had not discussed their abuse with a health care provider were significantly more likely than those who had to think that routine screening would put women at greater risk for being hurt by their abuser (46% vs 29%) and that they would be less likely to tell their health care provider about the abuse if there were a policy of mandatory reporting (71% vs 55%) (Table 4). Policy preferences did not differ by whether or not the women had disclosed the abuse to a health care provider (data not shown).

Women's Suggestions for HMO Services

Of the 120 responses provided, 78 (65%) suggested that counseling services be provided for abused women. Some women elaborated on types of counseling, examples of which included mental health services, self-esteem, and education on how to get help. Other frequently mentioned services were referral to shelters (16%) and hotlines (6%).

Discussion

A far lower percentage of both abused and non-abused women in this managed care sample agreed with routine screening than did those in the other previous

large-scale survey of emergency room and ambulatory care patients.^{17,18} The differences in settings and data collection methods may explain these discrepant results. Women seeking medical care at the time of the interview^{17,18} may be different from women reached at home for a telephone interview, as in our study. Another possible explanation is that we obtained more carefully considered responses from the women in our sample because we elicited their policy preferences after a series of items that required them to think about potential positive and negative consequences of routine screening. The lowered enthusiasm we found may reflect some of the real complexities of the issues that the women became more aware of as they answered the prior questions.

Nevertheless, women for whom routine screening is designed to help—abused women—were 1.5 times as likely as non-abused women to support routine screening, even after adjusting for sociodemographic differences between the two groups. Moreover, the majority of women in both groups believed that screening would make it easier for women to get help and would make women feel glad that someone was taking an interest. These results lend support to a continued recommendation for routine screening.

Mechanisms are needed to minimize the potential negative consequences of screening that concerned women. We found a high percentage (49%) of women saying that they would be offended or embarrassed. More troubling is the finding that 39.5% of all abused women and 46.1% of the abused women who had *not* discussed their abuse with a health care provider thought routine screening would put abused women at greater risk for being hurt. Screening protocols and patient information materials must incorporate safety planning and honest discussion with women about the safest options for them to pursue as they try to end the abuse.

Support for a policy of mandatory reporting was not widespread in this sample. More than one half of the abused women (53.7%) preferred a policy under which reporting abuse to the police is the woman's decision. Abused women were 1.4 times as likely as non-abused women to take this position. Given that the policy is designed to help abused women, their preferences and concerns warrant serious consideration in the design of such policies.

Abused women were half as likely as non-abused to believe that women would like having someone else be responsible for calling the police. The loss of autonomy inherent with mandatory reporting that has been discussed in the literature^{15,16,23} was reflected in the item that women would resent losing control over when to call the police, which was endorsed by slightly more abused (45%) than non-abused women (39%).

Two thirds of all women felt that mandatory reporting would decrease women's likelihood of disclosing

their abuse to their health care provider. Abused women who had not discussed their abuse with a health care provider were more likely to think that mandatory reporting would be a barrier to disclosure, suggesting that fear may have been the reason these particular abused women had not discussed the abuse with their health care provider. However, one quarter of women in this sample had in fact talked with their health care provider and reported that the health care provider was helpful, which lends further support to the potential benefit of routine screening.

Nevertheless, it is important to recognize that women expressed fears and concerns about the negative consequences of routine screening and, even more so, of mandatory reporting. Neither routine screening nor mandatory reporting has ever been evaluated for its effect on women's safety in any kind of experimental study,¹⁴ and this evaluation is clearly needed. Meanwhile, policy and the protocols to implement them must find ways to minimize the likelihood that more harm than good comes from routine screening and mandatory reporting. Interventions offered in managed care settings that would be well received, according to the women in this study, include counseling services, shelters, and confidential hotlines.

Conclusions

Although non-abused women were not as sure about routine universal screening in this managed care setting, a slight majority (54%) of the abused women supported the practice. Both groups believed that it was a way for women to get help and for health care professionals to show interest and concern about IPV. Women who had discussed their abuse with a health care provider generally found this discussion to be a helpful experience. Women's fears of being offended, embarrassed, or at greater risk from an abuser need to be addressed in routine screening policies. Women would appreciate the health care provider offering to call the police to take on this responsibility for them, while at the same time there was strong support for leaving the ultimate decision about calling the police up to the woman. Such an approach is respectful of the concerns for safety, autonomy, and confidentiality expressed by the abused women in this sample.

Any errors are the authors' own.

References

1. Campbell JC, Lewandowski LA. Mental and physical health effects of intimate partner violence on women and children. *Psychiatr Clin North Am* 1997;20:353-74.
2. Plichta SB. Violence and abuse: implications for women's health. In: Falik MM, Collins KS, eds. *Women's health: The Commonwealth Survey*. Baltimore, MD: Johns Hopkins University Press; 1996: 237-73.
3. Collins KS, Schoen C, Joseph S, Duchon L, Simatov E, Yellowitz M. Health

concerns across a woman's lifespan: the Commonwealth Fund 1998 survey of women's health. New York: The Commonwealth Fund; 1999.

4. Jones AS, Gielen AC, Campbell JC, et al. Annual and lifetime prevalence of partner abuse in a sample of female HMO enrollees. *Womens Health Issues* 1999;9(6):295-305.
5. McCauley J, Yurk RA, Jenckes MW, Ford DE. Inside "Pandora's box": abused women's experiences with clinicians and health services. *J Gen Intern Med* 1998;13:549-55.
6. Miller TR, Cohen MA, Wiersma B. Victim costs and consequences: a new look. Washington, DC: National Institute of Justice; 1996.
7. Wisner CL, Gilmer TP, Saltzman LE, Zink TM. Intimate partner violence against women. Do victims cost more? *J Fam Pract* 1999;48:439-43.
8. Campbell JC, Parker B. Battered women and their children: a review and policy recommendations. In: Fitzpatrick J, McElmurry BJ, Parker R, eds. Annual review of women's health. New York, NY: National League for Nursing Press; 1996:259-81.
9. American Medical Association. Violence against women: relevance for medical practitioners. *JAMA* 1992;267:3184-9.
10. Joint Commission on Accreditation of Healthcare Organizations. Accreditation manual for hospitals. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations; 1995.
11. Family Violence Prevention Fund. Routine screening for domestic violence in health care settings. Washington, DC: Bass & Howes; 1999.
12. Glass NE, Campbell JC. Mandatory reporting of intimate partner violence by health care professionals: a policy review. *Nurs Outlook* 1998;46(6):279-83.
13. Hyman A, Schillinger D, Lo B. Laws mandating reporting of domestic violence: do they promote patient well-being? *JAMA* 1995;273:1781-7.
14. Chalk R, King P. Violence in families: assessing prevention and treatment programs. Washington, DC: National Academy Press; 1998.
15. Hyman A, Chez RA. Mandatory reporting of domestic violence by health care providers: a misguided approach. San Francisco, CA: Family Violence Prevention Fund; 1994.
16. Mooney DM, Rodriguez MA. California healthcare workers and mandatory reporting of intimate violence. *Hastings Womens Law J* 1996;7(1):85-111.
17. Glass NE, Campbell JC, Dearwater S. Clinical practice issues for emergency department staff providing care to abused women. In press.
18. Caralis PV, Musialowski R. Women's experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. *South Med J* 1997;90(11):1075-180.
19. McFarlane J, Christoffel K, Bateman L, Miller V, Bullock L. Assessing for abuse: self report versus nurse interview. *Public Health Nurs* 1991;8:245-50.
20. McFarlane J, Greenberg L, Welte A, Watson M. Identification of abuse in emergency departments: effectiveness of a two-question screening tool. *J Emerg Nurs* 1995;21:391-4.
21. SPSS Statistical package for social sciences, version 9.0. Chicago: SPSS; 1999.
22. Kahn H, Sempos C. Statistical methods in epidemiology. New York, NY: Oxford University Press; 1989.
23. Freed PE, Drake VK. Mandatory reporting of abuse: practical, moral, and legal issues for psychiatric home healthcare nurses. *Issues Ment Health Nurs* 1999;20:423-36.

Women's Opinions About Domestic Violence Screening and Mandatory Reporting

Andrea Carlson Gielen, ScD, ScM, Patricia J. O'Campo, PhD, Jacquelyn C. Campbell, PhD, RN, FAAN, Janet Schollenberger, MHS, Anne B. Woods, RN, Alison S. Jones, PhD, Jacqueline A. Dienemann, PhD, RN, FAAN, Joan Kub, PhD, RN, E. Clifford Wynne, MD

Background: The purpose of this paper is to describe women's opinions and policy preferences concerning domestic violence screening and mandatory reporting.

Methods: This case-control study included 202 abused women and 240 randomly selected non-abused women recruited from a large metropolitan health maintenance organization who were interviewed by telephone. Of these women, 46.6% had a college degree, 53.4% were white, and 60% had a household income of \$50,000 or more.

Results: Forty-eight percent of the sample agreed that health care providers should routinely screen all women, with abused women 1.5 times more likely than non-abused women to support this policy. For mandatory reporting, 48% preferred that it be the woman's decision to report abuse to the police. Women thought it would be easier for abused women to get help with routine screening (86%) and mandatory reporting (73%), although concerns were raised about increased risk of abuse with both screening (43%) and reporting (52%) policies. Two thirds of the sample thought women would be less likely to tell their health care providers about abuse under a mandatory reporting policy. Interventions offered in managed care settings that would be well received, according to the women in this study, include counseling services, shelters, and confidential hotlines.

Conclusions: Women expressed fears and concerns about negative consequences of routine screening and, even more so, for mandatory reporting. Domestic violence policies and protocols need to address the safety, autonomy, and confidentiality issues that concern women.

Medical Subject Headings (MeSH): domestic violence, spouse abuse, mandatory reporting, battered women, health personnel, preventive health services (Am J Prev Med 2000;19(4): 279-285) © 2000 American Journal of Preventive Medicine

Introduction

It is now well established that domestic violence (DV) is a widespread problem with serious consequences for women's physical and mental health and their use of health services.¹⁻⁷ Without identification, abused women are denied documentation for future reference in court cases, education on prevention, safety planning, options for leaving the abuse, and referrals to resources in the community.⁸ Many professional health care organizations have called for routine screening of women for intimate partner violence (IPV).⁹⁻¹¹ In addition, six states have mandated that

health care providers report IPV to the criminal justice system.^{12,13}

Both screening and mandatory reporting are controversial because of a lack of demonstrated effectiveness in reducing the risk of violence and because of concerns about infringing on women's autonomy.^{12,14-16} These debates about screening and reporting protocols should be informed by an understanding of women's policy preferences. Incorporating the perspective of the intended audience in policy development is not only respectful of individuals' autonomy and privacy, but should also lead to initiatives that are more widely supported and, thus, more likely to reach the goal of protecting women from further abuse.

Only two studies could be found that address abused and non-abused women's preferences for DV screening and reporting in health care settings. In an anonymous survey, 1128 women from 11 community emergency departments (EDs) were queried.¹⁷ Although 80% to 97% of all women agreed with routine screening in the ED, those who were being abused currently or recently

From the Department of Health Policy and Management, Center for Injury Research and Policy (Gielen, Jones), Department of Family and Population Health Sciences (O'Campo), and the School of Nursing (Campbell, Schollenberger, Woods, Dienemann, Kub), Johns Hopkins University School of Public Health, Baltimore, Maryland; and Kaiser-Permanente (Wynne), Washington, DC.

Address correspondence and reprint requests to: Andrea C. Gielen, ScD, ScM, Johns Hopkins University School of Public Health, 624 N. Broadway, Baltimore, MD 21205. E-mail: agielen@jhsph.edu.

were significantly less likely to agree than women who were not being abused. Similarly, although 92% of non-abused women agreed with mandatory reporting police, significantly fewer of the currently abused (6%) and recently abused (82%) women did so. Caralis and Musialowskie¹⁸ interviewed 406 female patients in ambulatory clinics in a medical center that served veterans. Of these patients, 85% agreed that physicians should routinely screen women, and 79% thought that physicians should report abuse, findings that did not differ between abused and non-abused women.

In our study of a large, ethnically diverse sample of women enrolled in a health maintenance organization (HMO), we addressed the following aims: (1) to describe women's opinions and policy preferences about DV screening and mandatory reporting, (2) to compare these opinions and preferences between abused and non-abused women, (3) to examine the extent to which sociodemographic characteristics and disclosure of abuse are associated with women's opinions and policy preferences, and (4) to describe women's preferences for services that HMOs should provide to abused women.

Methods

Subject Recruitment

The study was approved by the Johns Hopkins University Institutional Review Board (IRB), the U.S. Army Research IRB, and the participating HMO's national and regional IRBs. Letters asking women to participate in a women's health survey were sent to a total of 21,426 female enrollees of a metropolitan Washington, DC-area HMO in two separate mailings in fall 1997 and fall 1998. Women were selected for the mailing if they were between the ages of 21 and 55 years at the time of the recruitment and had been enrolled continuously in the HMO from 1995 through 1997. For safety reasons, no reference to "abuse" was made in the recruitment letter. Twelve percent or 2535 women returned consent forms that gave permission for our interviewers to call. Of these women, 447 (17.6%) could not be located. Of those located, 76 (3.6%) refused to participate and 7 (<1%) were ineligible because they were no longer in the HMO. Thus, a total of 2005 women completed the telephone screening interview, from which case and control subjects were selected.

Definition of Case and Control Subjects

Women were screened for two dimensions of abuse (physical or sexual), using a modified Abuse Assessment Screen.^{19,20} First, women were considered to have been physically abused if they answered yes to either of the following two questions: "Have you ever as an adult been physically abused by a husband, boyfriend, or female partner?" and "Have you ever been hit, slapped, kicked, pushed, or shoved, or otherwise physically hurt by a current or previous husband, boyfriend, or female partner?" Women were classified as having been sexually abused if they gave a positive response to "Have you

ever, as an adult, been forced into sexual activities by a husband, boyfriend, or female partner?" Dates of the abuse were recorded, and women who reported having been physically or sexually abused since 1989 were selected as case subjects. Women who answered no to all three of these questions were eligible to be control subjects. A random selection process was programmed into the Computer Assisted Telephone Interview (CATI) system such that one of every nine eligible control women were selected.

Sample

Immediately after completing the screening interview, women selected as case and control subjects were asked to participate in an in-depth interview, which required an average of 25 minutes to complete. Among 231 case subjects asked to participate, 202 (87.4%) completed the in-depth interview and 29 (12.6%) refused. Of the 264 control subjects asked to participate, 240 (90.9%) completed the interview and 24 (9.1%) refused.

Measures

In addition to standard demographic variables, the survey included items to measure women's opinions, operationalized as beliefs about the consequences of routine screening and mandatory reporting. This process was introduced by reading, "We are interested to know how women who experience abuse can be assisted. Every woman's perspective is unique and valuable. Please tell me if you agree or disagree with the following items." Beliefs about the consequences of routine screening were measured by reading women six items (Table 1). Women's policy preference for routine screening was then ascertained with the answer to a single yes or no item, "Do you think doctors and nurses should ask all women at all visits if they are being physically or sexually abused?"

For beliefs about the consequences of mandatory reporting, women were asked: "If health care providers were required by law to report abuse to the police, do you agree or disagree that the following will happen" and five items followed (Table 1). Women's policy preference for mandatory reporting was ascertained by the following item: "Two ways have been proposed for how health providers should respond when a woman says she is abused. I'd like to know which one you think is better: The health care provider is required by law to report the abuse to the police; or it is up to the woman to decide if the health provider reports the abuse to the police" (Table 1).

Abused women were asked if they had ever talked about their abuse with a health care provider and, if so, to rate how helpful the provider was on a 4-point scale from "not helpful" to "entirely helpful." A final open-ended item was included, asking abused women what services they thought their health plan should offer to help abused women. Interviewers recorded verbatim responses, which were data entered, coded, and tallied.

Statistical Analyses

We employed multivariate regression for significance testing and adjustment methods to obtain prevalence rates. Because case and control subjects were significantly different in education, income, race, and marital status (Table 2), all com-

Table 3. Multiple logistic regression analysis of women's beliefs and policy preferences concerning routine screening and mandatory reporting among 202 abused women and 240 non-abused women, odds ratios (95% confidence intervals)

Beliefs about consequences and policy preferences	Case/control status (abused vs non-abused)	Ethnicity (African-American vs white/other)	Income (<\$50,000 vs ≥\$50,000)	Education (<college vs other)	Marital status (married vs other)
Routine screening					
Women would be offended or embarrassed	—	2.27 (1.48–3.49)	—	—	—
Women who are not being abused would be insulted	1.72 (1.10–2.68)	1.85 (1.15–2.97)	—	—	—
Abused women might lose their health insurance	—	—	—	0.50 (0.25–1.02)	—
It would put women at more risk for being hurt by their abuser	—	1.50 (0.97–2.32)	—	1.60 (1.03–2.48)	—
Women would be glad someone took an interest	—	—	0.30 (0.11–0.88)	—	—
Mandatory reporting					
Women would find it easier to get help	—	1.61 (0.98–2.65)	—	—	—
Women would like having someone else be responsible for calling the police	0.50 (0.27–0.92)	—	—	—	—
Women would resent losing control over when to call the police	—	—	1.52 (0.96–2.42)	—	0.62 (0.4–0.9)
Policy preferences					
Agree that health care providers should routinely screen all women for physical and sexual abuse at all visits	1.53 (1.02–2.3)	—	—	—	—
Prefer that reporting abuse to police is the woman's decision	1.41 (0.93–2.13)	0.54 (0.35–0.83)	—	—	—

cation (graduate degree vs up to a four-year college degree vs high school degree or less), race (white vs all others), annual household income (<\$50,000 vs ≥\$50,000), and marital status (married vs all others). For case subjects, control subjects, and the standard population, we identified the number of women within the 24 strata of education, race, income, and marital status. We then obtained strata-specific ratios of standard population to the case and control subjects. We created the weights (separately for case and control subjects) by applying the strata-specific ratio to each woman within the strata. We applied the weights such that the case and control subjects would each represent half the standard population, as they are approximately equal in number when not weighted. All proportions presented concerning the sample of case and control subjects are based on the weighted data. Because the weighted data are much larger in size than our case and control population, performing statistical tests on the weighted population would result in inappropriate *p* values; therefore, statistical tests were performed with the use of the multivariate logistic regression method with unweighted data described above.

Results

Sample

Abused and non-abused women differed significantly on all indicators except age (Table 2). Abused women were less likely to be college graduates, white, married, or have an annual household income of ≥\$50,000 per year.

Beliefs About the Consequences of Routine Screening and Mandatory Reporting

Virtually all women (86%) agreed that routine screening would make it easier for abused women to get help, 96% agreed that they would be glad someone took an interest, and 11% thought that women might lose their health insurance (Table 1). Almost three quarters of the sample thought mandatory reporting would make it easier for abused women to get help; at the same time, two thirds thought that women would be less likely to tell their health care provider, and one half of the sample thought it would put women at increased risk from their abuser (Table 1).

Table 4. Abused women's beliefs and policy preferences concerning routine screening and mandatory reporting by disclosure of abuse to health care provider^a

	Agreeing with item		
	Disclosed (%)	Did not disclose (%)	p value*
Consequences of routine screening			
Women would be offended or embarrassed	47.9	60.4	0.13
Women who are not being abused would be insulted	35.4	37.7	0.86
It would be easier for abused women to get help	77.1	86.3	0.17
Abused women might lose their health insurance	12.8	9.0	0.57
It would put women at more risk for being hurt by their abuser	29.2	46.1	0.04
Women would be glad someone took an interest	91.8	95.2	0.47
Consequences of mandatory reporting			
Women would find it easier to get help	63.3	76.6	0.07
Women would be at greater risk for being abused	47.7	55.6	0.39
Women would like having someone else be responsible for calling the police	79.2	80.6	0.84
Women would be less likely to tell their health care provider about the abuse	55.3	71.3	0.04
Women would resent losing control over when to call the police	39.6	45.3	0.51

*Based on chi-square analysis.

^an varies between 180 and 195 because of elimination of "don't know" responses.

After the adjustment for socioeconomic variables, abused women relative to non-abused women were 1.7 times more likely to believe that routine screening would insult women who are not being abused and 1.5 times more likely to believe that it would put women at more risk for being hurt by their abuser (Table 3). Controlling for abuse status and other sociodemographic variables, African-American women relative to women of other ethnic groups were more likely to think that routine screening would offend, embarrass, and insult women, although they were more likely to believe that mandatory reporting would make it easier for women to get help. Women with family incomes <\$50,000 compared with higher-income women were significantly less likely to think that routine screening would make women feel "glad someone took an interest" and significantly more likely to think that mandatory reporting would make women resent losing control over when to call the police.

Policy Preferences for Routine Screening and Mandatory Reporting

A higher proportion of abused women than non-abused women supported routine screening (54% vs 42%) and preferred a policy under which reporting abuse is the woman's decision (54% vs 42%) (Table 1). Abused women relative to non-abused women were 1.5 times more likely to support routine screening and 1.4 times more likely to prefer woman-controlled reporting over mandatory reporting by health providers, adjusting for sociodemographic variables (Table 4). Of all the sociodemographic variables examined, only ethnicity was a significant correlate of policy preferences: African-American women were less likely than women of

other ethnic groups to support woman-controlled reporting over mandatory reporting by health providers.

Disclosure of Abuse to Health Care Providers

Of the 202 abused women, 51 (25.4%) had talked to a health care provider about the abuse; of those women, 9.8% said the experience was not helpful, whereas 74.5% said it was either somewhat or entirely helpful. Women who had not discussed their abuse with a health care provider were significantly more likely than those who had to think that routine screening would put women at greater risk for being hurt by their abuser (46% vs 29%) and that they would be less likely to tell their health care provider about the abuse if there were a policy of mandatory reporting (71% vs 55%) (Table 4). Policy preferences did not differ by whether or not the women had disclosed the abuse to a health care provider (data not shown).

Women's Suggestions for HMO Services

Of the 120 responses provided, 78 (65%) suggested that counseling services be provided for abused women. Some women elaborated on types of counseling, examples of which included mental health services, self-esteem, and education on how to get help. Other frequently mentioned services were referral to shelters (16%) and hotlines (6%).

Discussion

A far lower percentage of both abused and non-abused women in this managed care sample agreed with routine screening than did those in the other previous

large-scale survey of emergency room and ambulatory care patients.^{17,18} The differences in settings and data collection methods may explain these discrepant results. Women seeking medical care at the time of the interview^{17,18} may be different from women reached at home for a telephone interview, as in our study. Another possible explanation is that we obtained more carefully considered responses from the women in our sample because we elicited their policy preferences after a series of items that required them to think about potential positive and negative consequences of routine screening. The lowered enthusiasm we found may reflect some of the real complexities of the issues that the women became more aware of as they answered the prior questions.

Nevertheless, women for whom routine screening is designed to help—abused women—were 1.5 times as likely as non-abused women to support routine screening, even after adjusting for sociodemographic differences between the two groups. Moreover, the majority of women in both groups believed that screening would make it easier for women to get help and would make women feel glad that someone was taking an interest. These results lend support to a continued recommendation for routine screening.

Mechanisms are needed to minimize the potential negative consequences of screening that concerned women. We found a high percentage (49%) of women saying that they would be offended or embarrassed. More troubling is the finding that 39.5% of all abused women and 46.1% of the abused women who had not discussed their abuse with a health care provider thought routine screening would put abused women at greater risk for being hurt. Screening protocols and patient information materials must incorporate safety planning and honest discussion with women about the safest options for them to pursue as they try to end the abuse.

Support for a policy of mandatory reporting was not widespread in this sample. More than one half of the abused women (53.7%) preferred a policy under which reporting abuse to the police is the woman's decision. Abused women were 1.4 times as likely as non-abused women to take this position. Given that the policy is designed to help abused women, their preferences and concerns warrant serious consideration in the design of such policies.

Abused women were half as likely as non-abused to believe that women would like having someone else be responsible for calling the police. The loss of autonomy inherent with mandatory reporting that has been discussed in the literature^{15,16,23} was reflected in the item that women would resent losing control over when to call the police, which was endorsed by slightly more abused (45%) than non-abused women (39%).

Two thirds of all women felt that mandatory reporting would decrease women's likelihood of disclosing

their abuse to their health care provider. Abused women who had not discussed their abuse with a health care provider were more likely to think that mandatory reporting would be a barrier to disclosure, suggesting that fear may have been the reason these particular abused women had not discussed the abuse with their health care provider. However, one quarter of women in this sample had in fact talked with their health care provider and reported that the health care provider was helpful, which lends further support to the potential benefit of routine screening.

Nevertheless, it is important to recognize that women expressed fears and concerns about the negative consequences of routine screening and, even more so, of mandatory reporting. Neither routine screening nor mandatory reporting has ever been evaluated for its effect on women's safety in any kind of experimental study,¹⁴ and this evaluation is clearly needed. Meanwhile, policy and the protocols to implement them must find ways to minimize the likelihood that more harm than good comes from routine screening and mandatory reporting. Interventions offered in managed care settings that would be well received, according to the women in this study, include counseling services, shelters, and confidential hotlines.

Conclusions

Although non-abused women were not as sure about routine universal screening in this managed care setting, a slight majority (54%) of the abused women supported the practice. Both groups believed that it was a way for women to get help and for health care professionals to show interest and concern about IPV. Women who had discussed their abuse with a health care provider generally found this discussion to be a helpful experience. Women's fears of being offended, embarrassed, or at greater risk from an abuser need to be addressed in routine screening policies. Women would appreciate the health care provider offering to call the police to take on this responsibility for them, while at the same time there was strong support for leaving the ultimate decision about calling the police up to the woman. Such an approach is respectful of the concerns for safety, autonomy, and confidentiality expressed by the abused women in this sample.

Any errors are the authors' own.

References

1. Campbell JC, Lewandowski LA. Mental and physical health effects of intimate partner violence on women and children. *Psychiatr Clin North Am* 1997;20:353-74.
2. Plichta SB. Violence and abuse: implications for women's health. In: Falik M, Collins KS, eds. *Women's health: The Commonwealth Survey*. Baltimore, MD: Johns Hopkins University Press; 1996: 237-73.
3. Collins KS, Schoen C, Joseph S, Duchon L, Simatov E, Yellowitz M. Health

concerns across a woman's lifespan: the Commonwealth Fund 1998 survey of women's health. New York: The Commonwealth Fund. 1999.

4. Jones AS, Gielen AC, Campbell JC, et al. Annual and lifetime prevalence of partner abuse in a sample of female HMO enrollees. *Womens Health Issues* 1999;9(6):295-305.
5. McCauley J, Yurk RA, Jenckes MW, Ford DE. Inside "Pandora's box": abused women's experiences with clinicians and health services. *J Gen Intern Med* 1998;13:549-55.
6. Miller TR, Cohen MA, Wiersema B. Victim costs and consequences: a new look. Washington, DC: National Institute of Justice; 1996.
7. Wisner CL, Gilmer TP, Saltzman LE, Zink TM. Intimate partner violence against women. Do victims cost more? *J Fam Pract* 1999;48:439-43.
8. Campbell JC, Parker B. Battered women and their children: a review and policy recommendations. In: Fitzpatrick J, McElmurry BJ, Parker R, eds. Annual review of women's health. New York, NY: National League for Nursing Press; 1996:259-81.
9. American Medical Association. Violence against women: relevance for medical practitioners. *JAMA* 1992;267:3184-9.
10. Joint Commission on Accreditation of Healthcare Organizations. Accreditation manual for hospitals. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations; 1995.
11. Family Violence Prevention Fund. Routine screening for domestic violence in health care settings. Washington, DC: Bass & Howes; 1999.
12. Glass NE, Campbell JC. Mandatory reporting of intimate partner violence by health care professionals: a policy review. *Nurs Outlook* 1998;46(6):279-83.
13. Hyman A, Schillinger D, Lo B. Laws mandating reporting of domestic violence: do they promote patient well-being? *JAMA* 1995;273:1781-7.
14. Chalk R, King P. Violence in families: assessing prevention and treatment programs. Washington, DC: National Academy Press; 1998.
15. Hyman A, Chez RA. Mandatory reporting of domestic violence by health care providers: a misguided approach. San Francisco, CA: Family Violence Prevention Fund; 1994.
16. Mooney DM, Rodriguez MA. California healthcare workers and mandatory reporting of intimate violence. *Hastings Womens Law J* 1996;7(1):85-111.
17. Glass NE, Campbell JC, Dearwater S. Clinical practice issues for emergency department staff providing care to abused women. In press.
18. Caralis PV, Musialowski R. Women's experiences with domestic violence and their attitudes and expectations regarding medical care of abuse victims. *South Med J* 1997;90(11):1073-180.
19. McFarlane J, Christoffel K, Bateman L, Miller V, Bullock L. Assessing for abuse: self report versus nurse interview. *Public Health Nurs* 1991;8:245-50.
20. McFarlane J, Greenberg L, Welge A, Watson M. Identification of abuse in emergency departments: effectiveness of a two-question screening tool. *J Emerg Nurs* 1995;21:391-4.
21. SPSS Statistical package for social sciences, version 9.0. Chicago: SPSS. 1999.
22. Kahn H, Sempos C. Statistical methods in epidemiology. New York, NY: Oxford University Press; 1989.
23. Freed PE, Drake VK. Mandatory reporting of abuse: practical, moral, and legal issues for psychiatric home healthcare nurses. *Issues Mental Health Nurs* 1999;20:423-36.

Table 1. Women's beliefs and policy preferences concerning routine screening and mandatory reporting, weighted proportions

	Agreeing with item (%)		
	Total sample (N=1988)	Case subjects abused women	Control subjects non-abused women
Consequences of routine screening			
Women would be offended or embarrassed	48.9	48.2	49.6
Women who are not being abused would be insulted	27.6	33.4	22.3
It would be easier for abused women to get help	86.1	85.2	87.0
Abused women might lose their health insurance	11.0	10.4	11.7
It would put women at more risk for being hurt by their abuser	42.9	39.5	46.3
Women would be glad someone took an interest	95.6	96.9	94.3
Consequences of mandatory reporting			
Women would find it easier to get help	73.1	71.5	74.7
Women would be at greater risk for being abused	52.0	54.2	50.0
Women would like having someone else be responsible for calling the police	85.8	81.1	90.4
Women would be less likely to tell their health care provider about the abuse	67.3	68.0	66.7
Women would resent losing control over when to call the police	41.7	45.0	38.6
Policy preferences			
Agree that health care providers should routinely screen all women for physical and sexual abuse at all visits	47.8	54.5	41.5
Prefer that reporting abuse to police is the woman's decision	47.6	53.7	42.1

parisons of these two groups had to account for these differences.

Regression

All statistical testing for differences in beliefs and policy preferences between case and control subjects was accomplished with the use of SPSS software²¹ and employed methods of multiple logistic regression that allowed us to examine the association of case and control status and to adjust for the variables on which the two groups differed. All regression models contained indicator variables for case or control status, education, income, race, and marital status; $p<0.05$ was used as the criterion for statistical significance. Odds ratios (OR) and 95% confidence intervals (CI) are presented for all statistically significant variables. When comparing within cases for those who disclosed their abuse versus those who did not (Table 3), chi-square statistics computed on the unweighted data were used.

Standardization

When calculating the proportions for the two groups of women holding certain beliefs or preferring certain policies, we employed methods of direct adjustment to account for the differences in the two samples with respect to education, race, income, and marital status. For the direct adjustment to obtain proportions for case and control subjects, we identified a "standard" population that would ensure comparability on education, race, income, and marital status.²² We chose as the standard population the group of women who were screened for eligibility for our study (N=2005), which was thought to be ideal as these women represent the population to which we wish to generalize results—that is, a group of HMO enrollees.

To accomplish the standardization, we assigned weights to each of the case and control subjects. We obtained weights by stratifying the case and control subjects, separately, on four adjustment variables: edu-

Table 2. Sociodemographic characteristics

	Case subjects abused women (n=202)	Control subjects non-abused women (n=240)	Total sample (n=442)	Weighted sample (n=1988)
Education* (% college graduate)	34.2	54.2	45.0	46.6
Ethnicity* (% white)	40.6	55.0	48.4	53.4
Marital status* (% married)	37.1	47.5	42.8	57.6
Household income* (% $\geq \$50,000$ /year)	39.8	57.0	49.2	60.0
Age (% <40 year)	55.0	55.8	55.4	53.9

* $p<0.05$ by χ^2 analysis.

Annual and Lifetime Prevalence of Partner Abuse in a Sample of Female HMO Enrollees

Alison Snow Jones, PhD
Andrea Carlson Gielen, ScD

Department of Health Policy and Management
School of Hygiene and Public Health
Johns Hopkins University
Baltimore, Maryland

Jacquelyn C. Campbell, PhD, RN, FAAN
Janet Schollenberger, MHS
Jacqueline A. Dienemann, PhD, RN, FAAN
Joan Kub, PhD, RN

School of Nursing
Johns Hopkins University
Baltimore, Maryland

Patricia J. O'Campo, PhD

Department of Population and Family Health Sciences
School of Hygiene and Public Health
Johns Hopkins University
Baltimore, Maryland

E. Clifford Wynne, MD

Kaiser-Permanente
Washington, DC

Abstract Self-reported data from a survey of roughly 1,100 female health maintenance organization enrollees in the Washington, DC, metropolitan area are used to investigate the lifetime and annual prevalence of emotional, physical, and sexual abuse by intimate partners. The sample consists of a racially balanced and, for the most part, well-educated group of working women. Three dimensions of abuse based on responses to questions from a modified version of the Abuse Assessment Screen are employed. In addition to simple descriptive analyses, logistic regression was performed. The estimated annual prevalence is lower than estimates reported in other studies. However, lifetime prevalence is very similar to estimates found in primary care clinical samples and somewhat higher than those derived from population-based surveys. More highly educated women report the lowest lifetime prevalence of intimate partner abuse. The finding that this sample of well-educated, middle-class working women has lifetime prevalence rates similar to those of women who are not as well off demonstrates that intimate partner abuse is not limited to disadvantaged women from vulnerable population subgroups.

© 1999 by the Jacobs Institute
of Women's Health
Published by Elsevier Science Inc.
1049-3867/99/\$20.00
PII S1049-3867(99)00022-5

Studies of intimate partner abuse among women in the general population have unambiguously documented that women report high rates of abuse by intimate partners at least once in their lifetimes.^{1,2} A number of studies have also documented high rates of intimate partner abuse in women using primary care and emergency care clinics³⁻⁸ and high rates of injury and other health problems associated with battered partners.^{9,10} This study provides estimates of the lifetime and annual prevalence of intimate partner abuse using self-reported data from a survey of 1,138 female HMO enrollees in the metropolitan Washington, DC, area. The sample represents a racially balanced and, for the most part, highly educated group of middle-class working women. It is also a group that many health care practitioners might expect to be at reduced risk of ever having experienced partner abuse.

PREVIOUS RESEARCH

Tables 1 and 2 summarize lifetime and annual prevalence estimates from other clinical and population-based samples. Some of the variation in estimated prevalence rates described in these tables arises from sample restrictions and definitions of abuse. In general, annual prevalence estimates from clinical samples tend to exceed those from nationally representative samples. Lifetime prevalence estimates from primary care clinics and general population surveys tend to be fairly similar, ranging from roughly 21% to 39% in the studies cited in here. When population-based samples are restricted to only those women currently residing with a male partner, estimates of annual prevalence are relatively low regardless of sample: 5.5-13.6%.⁹⁻¹² However, when the sample is not so restricted, estimates of annual prevalence rise to between 12% and 26%.¹³ These figures are even higher among younger women¹⁴ and among women whose socioeconomic status is low.³

DATA

Letters asking women to participate in a women's health survey were sent to 10,599 female enrollees of a metropolitan Washington, DC, area health maintenance organization (HMO) who were between the ages of 21 and 55 years on January 1, 1997. There was no reference to abuse in this letter. Those who were willing to participate (14%) mailed back consent forms and indicated a time(s) when and telephone number(s) where it would be convenient for them to be contacted and interviewed "in private." A description of further precautions taken to ensure the safety of all study participants is available from the authors. Because the larger study will examine health services use among these women, the mailing list was restricted to women who had been continuously enrolled in the HMO from before or on January 1, 1995, through December 31, 1997. The telephone survey team was given training about domestic violence and safety procedures before contacting the 1,476 women who consented to be interviewed by phone. On telephone contact, 271 women (18.3%) were not locatable and 66 (4.5%) refused to participate when phoned. The final sample consisted of 1,138 women who were interviewed by phone between September 1997 and March 1998.

Sample characteristics are given in the second column of Table 3. As a group, these are highly educated, middle- to upper-middle-class women. It is a racially balanced group consisting of equal proportions of white and

The sample was 1,138 women—ages 21-55—enrollees of a Washington, DC, area HMO.

Table 1. ESTIMATES OF LIFETIME AND ANNUAL PREVALENCE OF PARTNER ABUSE STUDIES BASED ON CLINICAL SAMPLES

Study	Outcome measure	Sample	Prevalence estimate
Rath et al (1989) ³	Not specified, except "abuse" was not used in the screening questions	Female patients, Sioux Falls, SD, clinics (high proportion of low-SES respondents)	Annual verbal abuse: 47% Annual minor physical abuse: 44% Annual severe physical abuse: 28%
Gin et al (1991) ⁴	Hit or hurt by significant other with whom currently living	Male & female patients, 3 university-affiliated primary care internal medicine practices	Current: 14% Lifetimes: 28% Female lifetime: 34% Male lifetime: 12%
Martins et al (1992) ³²	Modified CTS	All women patients seen during 2-week period at family practice clinic (n = 273)	Prevalence: 7%
Hamburger et al (1992) ⁵	Physical assault by partner (CTS), pushed, shoved → severe	Female patients, family practice clinic, Midwestern city	Annual: 22.7% Lifetime: 38.8%
Abbott et al (1995) ⁶	Assault, threat, or intimidation by male partner	Female patients, 2 teaching EDs, 2 hospital walk-in clinics, 1 private hospital ED	Annual prevalence (women with current male partner): 11.7% Annual prevalence (women w/o current male partner): 5.6% Lifetime: 54.2%
McCauley et al (1995) ⁸	Hit, slapped, kicked, physically hurt, or forced sexual activities by husband, ex-husband, boyfriend, or relative.	Female patients, 4 community-based, primary care internal medicine practices	Annual: 5.5% Adult lifetime: 21.4% Childhood & adult lifetime: 32.7%
Dearwater et al (1998) ⁷	Annual: physical or sexual abuse Lifetime: emotional or physical abuse	Women 18 years and older treated in community hospital emergency departments in Pennsylvania and California	Annual: 14% (CA: 17%; PA: 12%) Lifetime: 36% (CA: 44%; PA: 31%)

CTS = conflict tactics scale; ED = emergency department; SES = socioeconomic status.

African American women. Latinos and other minorities comprise a very small proportion of the women sampled, which is characteristic of the geographic area from which the sample is drawn. Ninety percent are employed either full or part time. More than half were married at the time of the survey and more than half have household incomes that exceed \$50,000/year. Just over 50% had at least one child. Unfortunately, since the HMO does not compile statistics on the demographic characteristics of their enrollees, there was no way to compare this sample with the larger population of all women enrolled in the HMO.

METHODS

Two dimensions of abuse (physical or sexual) are employed throughout this analysis based on responses to questions from a modified version of the Abuse

Table 2. LIFETIME AND ANNUAL PREVALENCE OF PARTNER ABUSE STUDIES BASED ON GENERAL POPULATION SURVEYS

Study	Outcome measure	Sample	Prevalence estimate
Straus et al (1980) ³³	CTS	National survey, U.S. women, 1975	Annual: 11.6%
Straus & Gelles (1986) ¹²	CTS	National survey, U.S. women, 1985	Annual: 12.1%
Elliott et al (1985) ¹³		National survey, U.S. women (18-24 years)	Annual: 38.8%
Plichta (1996) ⁹	Physical assault by partner (CTS), pushed, shoved → severe	National survey, U.S. women (18-64 years, currently living with or married to a man)	Annual: 8.4%
Commonwealth Fund (1993) ¹⁰	Physical abuse by spouse or partner	National survey, U.S. women (married or living with someone as a couple)	Annual: 8%
Klein et al (1993) ³⁴	"Violent Abuse" by spouse or boyfriend	Family Violence Prevention Fund National Survey, U.S. women	Lifetime: 33%
Schafer et al (1998) ¹¹	Physical assault by partner (CTS), pushed, shoved → severe	Multistage probability sample of both members of 1,635 representative married and nonmarried couples living in 48 contiguous states	Annual male to female: 5.2-13.6%

CTS = conflict tactics scale.

Assessment Screen (AAS).^{14,15} Unlike the AAS, which asks about emotional and physical abuse in the same question, respondents in this study were asked about these types of abuse separately (Figure 1, Questions 1 and 3). A woman is classified as having experienced sexual abuse if she gave a positive response to Question 5 in Figure 1. The definition of physical abuse that was used included pushing, shoving, punching, kicking, or threatening with a weapon (Question 4 in Figure 1) as well as the woman's own perception that she had been physically abused (Question 3 in Figure 1). All women who responded affirmatively to Questions 3 or 4 were considered to have experienced physical abuse. Roughly 90% of all women who were classified as having been abused responded positively to Question 4. The remaining 10% responded positively only to Question 3.

The sample includes women who were not currently intimately involved or living with a partner at the time of the interview. Those who were currently involved or living with a partner and who reported past abuse may not have been abused by their current partner. Women with previous or current romantic intimate female partners are also included in this sample. The last group accounted for <1% of the total that reported abuse by an intimate partner.

RESULTS

Lifetime Prevalence Estimates

Lifetime prevalence rates of sexual and physical abuse are presented in Column 3 of Table 3. Overall, the sample had a lifetime prevalence of 37%. Women in their thirties report the lowest overall prevalence (30.2%), whereas women in their forties report the highest (42.2%). Across racial groups, white European women report the lowest prevalence of physical and/or sexual abuse, whereas African American women report the highest. Lifetime preva-

Overall, the sample had a lifetime prevalence (for sexual and physical abuse) of 37%.

Table 3. LIFETIME AND ANNUAL PREVALENCE RATES OF PHYSICAL OR SEXUAL ABUSE BY INTIMATE PARTNERS IN A SAMPLE OF FEMALE HMO ENROLLEES

Characteristics	N	Sample mean (%)	Lifetime prevalence (%)	Annual prevalence (%)
Total sample	1,138		36.9	4.0
Age group				
21-29	73	6.4	35.7	8.2
30-39	351	30.8	30.2	5.4
40-49	514	45.2	42.2	3.5
50-56	200	17.6	35.5	1.0
Race				
White European	531	46.7	27.4	2.4
African American	531	46.7	47.1	5.8
Other minority	74	6.6	32.5	1.6
Current marital status				
Married	669	58.5	27.5	2.1
Separated or divorced	180	15.8	60.5	6.1
Never married	226	19.9	36.7	4.9
Widowed	63	5.5	69.8	14.3
Education				
HS grad*	287	25.3	49.0	4.9
Some college	467	32.4	42.2	4.6
4 years college	251	22.2	27.5	4.4
Postgraduate	227	20.1	22.9	1.3
Employment status				
Full time	847	76.8	39.5	3.9
Part time	147	13.3	26.5	4.1
Unemployed†	109	9.9	30.2	3.7
Household income				
<\$30,000	188	17.1	48.5	5.3
\$30,000-50,000	292	26.5	47.3	7.5
\$51,000-80,000	340	30.9	32.0	2.4
>\$80,000	281	25.5	27.0	1.8
Percent household income contributed by respondent				
<25%	151	13.5	22.4	2.6
25-50%	265	23.7	28.3	3.0
51-75%	269	24.1	32.7	2.6
>75%	433	38.7	50.2	5.8
No. children in household				
None	492	43.2	38.8	2.2
1	262	23.0	41.2	5.0
2	248	21.8	31.1	5.6
≥3	136	12.0	33.1	4.4

*Includes GED, 26 trade school graduates, and 16 women who did not complete high school.

†Roughly half of the women in this category reported that they are homemakers.

lence is highest for widows (70%), although the number of women who are widowed in this sample is quite small ($n = 63$). The finding that separated or divorced women have a high prevalence of intimate partner abuse (60.5%) is not surprising because abuse is often associated with marital failure as either a cause or consequence.^{7,19}

Figure 1
Partner Abuse Screening Questions

Q.1 Have you ever as an adult been emotionally abused by a husband, boyfriend, or female partner?
1 ... Yes
2 ... No
8 ... Don't Know
9 ... Refused

Q.2 Have you experienced any emotional abuse in the last 12 months, that is, since September of last year?
1 ... Yes
2 ... No
8 ... Don't Know
9 ... Refused

Q.3 Have you ever as an adult been physically abused by a husband, boyfriend, or female partner?
1 ... Yes
2 ... No
8 ... Don't Know
9 ... Refused

Q.4 Okay, this question is worded a little different. Have you ever been hit, slapped, kicked, pushed, or shoved or otherwise physically hurt by a current or previous husband, boyfriend, or female partner?
1 ... Yes
2 ... No
8 ... Don't Know
9 ... Refused

Q.5 Have you ever, as an adult, been forced into sexual activities by a husband, boyfriend, or female partner?
1 ... Yes
2 ... No
8 ... Don't Know

There is a linear downward trend in lifetime prevalence of intimate partner violence as the respondent's education increases. A chi-square test indicates that women with ≥ 4 years of college report significantly lower lifetime prevalence of physical abuse ($P = .001$). Women employed full time report the highest lifetime prevalence of physical and/or sexual abuse. Women living in households with incomes under \$50,000 also report significantly higher lifetime prevalence rates. The prevalence of physical abuse increases nearly linearly with the percentage of income that women contribute to their current household. Women with no children or only one child report the highest lifetime prevalence of physical or sexual abuse.

ANNUAL PREVALENCE ESTIMATES

Annual prevalence for any type of physical or sexual abuse was 4% in this sample (Column 4 of Table 3) based on reported abuse in a 12-month period (during 1996-1997) before administration of the survey. Women in their

Annual prevalence for any type of physical or sexual abuse was 4%.

twenties report the highest annual prevalence of physical or sexual abuse. There is also a pronounced downward linear trend in annual prevalence of physical and/or sexual abuse with age. African American women have more than twice the rate of physical or sexual abuse as white women ($P < .01$). Also similar to the findings for lifetime prevalence, women who report being widows have the highest annual prevalence, whereas married women report the lowest ($P < .001$). Interestingly, the downward trend observed for education on lifetime prevalence is not observed for annual prevalence, except for women in the highest education category. Surprisingly, unemployed women have the lowest annual prevalence of physical or sexual abuse.

Women residing in households with annual incomes between \$30,000 and \$50,000 appear to be at highest risk of recent physical or sexual abuse. There is also a striking and significant difference in annual prevalence between the two lowest income groups and the two highest ($P < .005$). As with lifetime prevalence, women in the higher income categories ($> $50,000$) report the lowest annual prevalence of intimate partner physical abuse. However, the highest income category is more protective for annual than lifetime abuse. Women with no children have an annual prevalence rate that is < 0.5 the rate of women with one or more children.

LOGISTIC REGRESSION ANALYSIS

To take account of possible correlation among risk factors, logistic regression was estimated using a binary indicator of lifetime physical or sexual abuse as the dependent variable. The results of this regression are presented in Table 4. Because of the small number of women who were abused within the past year, it was not possible to conduct a similar regression analysis of annual prevalence.

In contrast to the simple descriptive results presented in Table 3, income and employment effects are nonexistent when other confounding variables are controlled. However, as was seen previously, age, race, marital status, and education are significantly associated with lifetime abuse. Moreover, the patterns seen in Table 3 persist. Risk of lifetime abuse is elevated by roughly 70% in both the 20-29-year age group and the 40-49-year age group relative to 30-39-year-olds. The elevated prevalence among 50-59-year-olds relative to this latter group is not seen in this regression. African American women experience an elevated risk of about 30%. However, this is not strongly statistically significant ($P = .09$), suggesting that when other factors are included, the strong differences observed in Table 3 are diminished. The strong elevated effects for separated, divorced, and widowed women (odds ratios 2.54, 3.99, respectively) are still observed, as is the strong diminution of effect for women with college or graduate degrees (odds ratio 0.54).

DISCUSSION

This sample's lifetime prevalence estimate of 37% is very similar to those prevalence estimates found in primary care clinical samples cited in Table 1 and somewhat higher than most of those derived from the population-based surveys reported in Table 2. However, unlike many of these other samples, this sample is highly educated and for the most part financially well off. It is composed of women whom many would assume are not likely to have experienced intimate partner abuse. The finding that these "low-risk" women have lifetime prevalence rates similar to those of women who are not as well

This sample is very similar to those prevalence estimates found in [other] surveys, [but] this sample is highly educated and for the most part financially well off.

Table 4. RISK FACTORS FOR LIFETIME PREVALENCE OF SEXUAL AND PHYSICAL ABUSE BY INTIMATE PARTNERS IN A SAMPLE OF FEMALE HMO ENROLLEES

Characteristic	Ever abused		
	Odds ratio	Confidence interval	
Age			
21-29	1.66 [§]	0.91	3.04
40-49	1.69	1.21	2.36
50-56	1.29	0.82	2.02
Race			
African American	1.32 [§]	0.96	1.81
Marital status			
Separated or divorced	2.54 [#]	1.58	4.13
Never married	1.01	0.63	1.62
Widowed	3.99 [#]	2.01	7.90
Education*			
HS grad	1.22	0.86	1.74
College grad/post grad	0.54 [#]	0.39	0.75
Employment			
Part-time	0.89	0.55	1.44
Not in labor force	1.01	0.58	1.76
Household income			
<\$30,000	1.06	0.68	1.67
\$30,000-50,000	1.21	0.83	1.78
>\$80,000	1.06	0.72	1.56
% Contribute to household income			
≤25%	0.68	0.35	1.31
26-50%	0.86	0.53	1.39
51-75%	0.83	0.53	1.30
No. of children in household [†]			
1	1.05	0.74	1.50
2	0.89	0.60	1.31
≥3	1.05	0.65	1.72

*Omitted category is the numerically largest category, women with some college education.

†Omitted category is the numerically largest category, women who contribute 80-100% of household income.

‡Omitted category is the numerically largest category, women with no children.

§*P* = .1.

||*P* = .01.

#*P* = .001.

off socioeconomically reinforces the fact that such violence is not limited to disadvantaged women. Moreover, it suggests that a large portion of the female population is at risk during some part of their lifetime for the negative psychological and physical sequelae of partner abuse.

The sample's annual prevalence estimate (4.0%) is lower than all the annual estimates reported in Tables 1 and 2. This low annual prevalence rate may reflect the high level of education and income observed in this sample. Because the income and education levels reported are current, whereas the abuse could have occurred at any time in the past, it would be expected that these factors would have their strongest influence on abuse that occurred most recently. Thus, the protective or empowering influence of education and income in enabling women to leave and/or take other actions to deter the violence would be manifested more strongly in the annual prevalence estimates for this group.

The logistic regression analysis presented in Table 4 suggests that among

characteristics associated with decreased risk of ever having been abused, education is the most important. There are several possible explanations for this finding. One is that more highly educated women have more financial resources available to them, thus enabling them to leave at the first sign that a partner is potentially violent. It is also possible that the potentially violent partner is less likely to act out toward a partner who has more freedom to leave.¹⁶⁻¹⁸ Another explanation is that education proxies some other unmeasured characteristic of one or both of the partners. More highly educated individuals may be more emotionally resourceful in negotiating and resolving conflict than their less well-educated counterparts; or more highly educated individuals may be more sensitive to the potentially negative consequences and community sanctions against batterers, particularly those that might influence occupational opportunities or social status. These speculations cannot be tested using these data because the data do not include information on the woman's educational attainment (or that of her partner) at the time of the abuse. However, this finding warrants further investigation as it may suggest new approaches to preventing intimate partner violence.

Characteristics that are associated with increased risk of lifetime abuse are age, race, and marital status. Of these, marital status is the most difficult to interpret. This is because of the uncertainty regarding the direction of causality between this characteristic and intimate partner abuse. It is not possible to determine from these data whether separation or divorce was the consequence of preexisting abuse, or whether separation or divorce triggered abusive behavior by the partner. Other research indicates that separation and divorce represent an increased risk for serious intimate partner assault.^{7,19} Findings from longitudinal studies²⁰ and studies that examined the impact of separation on intimate partner homicide^{21,22} suggest that at least part of this elevation in risk is related to increased violence when a woman leaves.

The finding that widows are four times more likely to have been abused in their lifetime is puzzling. One possible explanation for this finding is that it is a proxy for some other risk factor. Perhaps the partners of this relatively small portion of the sample were more likely to drink and drive, start fights in bars, use drugs, and engage in high-risk behaviors that increase the probability of death by homicide or accident. There is some evidence that these behaviors are associated with personality traits or psychological profiles that are also associated with a higher likelihood of intimate partner violence.²³⁻²⁵

The increased risk for women who contribute the bulk of the household income would be consistent with the status inconsistency premise first advanced by Allen and Straus.²⁶ These authors hypothesized that men who were of a lower education, job, or income category than their wives in a society that expected males to have higher status would be more prone to use violence in conflicts with their partners. This premise was supported by data from Hornung et al.,²⁷ but was not supported in other settings.²⁸ More recent work using longitudinal data found that employed men were much less likely to physically assault their partners.²⁹ However, there is some evidence that when the woman's income is very high relative to the man's, the level of violence may increase.³⁰ In the findings reported here, this variable does not necessarily reflect the woman's income contribution status at the time of the abuse. Future studies should aim to clarify these relationship dynamics.

The finding that a significantly elevated risk of physical abuse among African American women is substantially diminished when income and education are controlled for is consistent with the data of Lockhart,³¹ who suggested that race may be confounded by omitted variables such as income and education in such studies. Although there is still a 30% elevation in risk, the effect is only significant at the $P = .09$ level.

CONCLUSIONS

This study has examined the lifetime and annual prevalence of intimate partner violence in a sample of female HMO enrollees. The results for lifetime prevalence (37%) are consistent with those of previous studies despite significant differences between samples in socioeconomic status. At the same time, the annual prevalence rate in this sample was 4.0%, which is lower than estimates from previous studies. The lifetime prevalence results provide further evidence that intimate partner violence is prevalent among women of all ages and income categories and represents a significant risk to U.S. women in general. The annual prevalence results suggest that younger women are most likely to be currently at risk.

[Results] suggest that education is "protective" against intimate partner violence.

In this sample, more highly educated women were least likely to report ever having been abused. This effect persists even when other risk factors including income are controlled for. It suggests that education is protective against intimate partner violence over and above whatever empowerment might be derived from the higher income associated with higher education. A better understanding of this finding could provide valuable guidance in formulating future programs that aim to prevent intimate partner violence. Future research should be directed to elucidate the role of higher education in reducing the risk of ever having experienced intimate partner abuse.

ACKNOWLEDGMENT

This research was supported by U.S. Army Research Materiel and Command (USAMRMC), DAMD 17-96-1-6310/RCS DD-HA(OT)2068. Any errors are the authors' own.

REFERENCES

1. Straus, MA, RJ Gelles. How violent are American families? Estimates from the National Family Violence Resurvey and other studies. In: Straus MA, Gelles RJ, editors. *Physical violence in American families: risk factors and adaptations to violence in 8,145 families*. New Brunswick: Transaction Publishers, 1995.
2. Heise L. Fact sheet on gender violence. New York: IWTC/UNIFEM Resource Center, 1992.
3. Rath GD, Jarratt LG, Leonardson G. Rates of domestic violence against adult women by men partners. *J Am Board Fam Pract* 1989;2:227-33.
4. Gin N, Rucker L, Frayne S, Cygan R, Hubbell AF. Prevalence of domestic violence among patients in three ambulatory care internal medicine clinics. *J Intern Med* 1991;6:317-22.
5. Hamberger, LK, Saunders DG, Hovey M. Prevalence of domestic violence in community practice and rate of physician inquiry. *Fam Med* 1992;24:283-7.
6. Abbott J, John R, Koziol-McClain J. Domestic violence against women: incidence and prevalence in an emergency department population. *JAMA* 1995;273:1763-7.
7. Dearwater SR, Coben JH, Campbell JC, Nah G, Glass N, McLoughlin E, Berkmeier B. Prevalence of intimate partner abuse in women treated in community hospital emergency departments. *JAMA* 1998;280:433-8.
8. McCauley J, Kern DE, Kolodner K, Dill L, Schroeder AF, DeChant HK, Ryden J, Bass EB, Derogatis LR. The "battering syndrome": prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. *Ann Intern Med* 1995;123:737-46.
9. Plichta SB. Violence and abuse: implications for women's health. In: Falik MF, Collins KS, editors. *Women's health, The Commonwealth Fund Survey*. Baltimore, MD: Johns Hopkins University Press, 1996.

10. The Commonwealth Fund. *The health of American women*. New York: Louis Harris and Associates, 1993.
11. Schafer J, Caetano R, Cook CL. Rates of intimate partner violence in the United States. *Am J Public Health* 1998;88:1702-4.
12. Straus MA, Gelles RJ. Societal change and change in family violence from 1975 to 1985 as revealed by two national surveys. *J Marr Fam* 1986;48:465-79.
13. Elliot DS, et al. *The dynamics of delinquent behavior: a national survey progress report*. University of Colorado, Boulder: Institute of Behavioral Sciences, 1985.
14. McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy. *JAMA* 1992;267:3176-78.
15. Soeken KL, McFarlane J, Parker B, Lominack MC. The abuse assessment screen: a clinical instrument to measure frequency, severity, and perpetrator of abuse against women. In: Campbell JC, editor. *Empowering survivors of abuse: health care for battered women and their children*. Thousand Oaks, CA: Sage, 1998:195-203.
16. Gelles RJ. Abused wives: why do they stay? *J Marr Fam* 1976;38:659-68.
17. Pagelow MD. *Woman-battering: victims and their experiences*. Newbury Park, CA: Sage, 1981.
18. Farmer A, Tiefenthaler J. An economic analysis of domestic violence. *Rev Soc Econ* 1997;55:337-58.
19. Bachman R, Saltzman L. Violence against women: estimates from the redesigned survey. US Department of Justice, Office of Justice Programs, NCJ-154348:1995.
20. Campbell JC, Rose L, Kub J. Voices of strength and resistance: a contextual and longitudinal analysis of women's responses to battering. *J Interpers Violence* 1998;13:743-62.
21. Wilson M, Daly M. Spousal homicide risk and estrangement. *Violence Vict* 1993;8:3-15.
22. Moracco KE, Runyan CW, Butts J. Femicide in North Carolina. *Homicide Stud* 1998;2:422-46.
23. Rath GD, Jarratt LG. Battered wife syndrome: overview and presentation in the office setting. *South Dakota Journal of Medicine* 1990;43:19-25.
24. Hamberger L, Hastings J. Characteristics of male spouse abusers consistent with personality disorders. *Hosp Commun Psychol* 1988;39:763-70.
25. Maiuro R, Cahn T, Vitaliano P, Wagner B, Zegree J. Anger, hostility, and depression in domestically violent versus generally assaultive men and nonviolent control subjects. *J Consult Clin Psychol* 1988;56:17-23.
26. Allen CM, Strauss MA. Resources, power, and husband-wife violence. In: Hotaling GT, Strauss MA, editors. *Social causes of husband-wife violence*. Minneapolis, MN: University of Minnesota Press, 1980.
27. Hornung CA, McCullough C, Sugimoto T. Status relationships in marriage: risk factors in spouse abuse. *J Marr Fam* 1981;43:675-92.
28. Counts D, Brown J, Campbell JC. *Sanctions & sanctuary: cultural analysis of the beating of wives*. Boulder, CO: Westview Press, 1992.
29. Tauchen H, Dryden Witte A. The dynamics of domestic violence. *Am Econ Rev* 1995;85:414-18.
30. Tauchen HV, Dryden Witte A, Long SK. Domestic violence: a nonrandom affair. *Int Econ* 1991;32:491-511.
31. Lockhart LL. A reexamination of the effects of race and social class on the incidence of marital violence: a search for reliable differences. *J Marr Fam* 1987;49:603.
32. Martin R, Holzapfel S, Baker P. Wife abuse: are we detecting it? *J Womens Health* 1992;1:77-80.
33. Straus MA, Gelles RJ, Steinmetz JK. *Behind closed doors: violence in the American family*. Garden City, NJ: Anchor/Doubleday, 1980.
34. Klein E, Campbell JC, Soler E, Ghez M. *Ending the violence*. Newbury Park, CA: Sage, 1997.